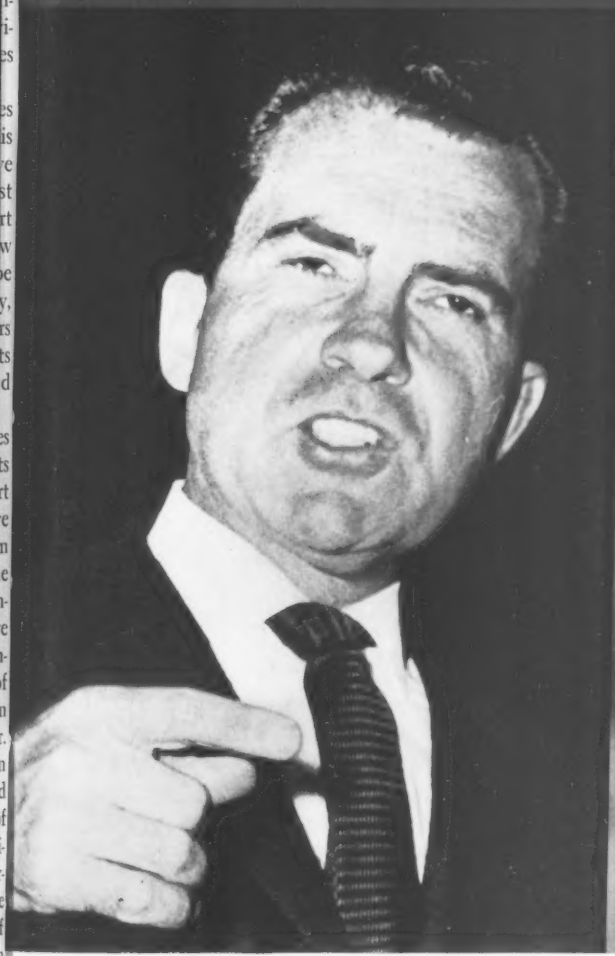
ENGINEERING NEWS-RECORD

AUG. 4, 1960

CONTENTS ON PAGE 15

- The new look in asphalt plants p.31
- Canada's biggest earthfill dam p.34



The campaign and construction p.19

A McGRAW-HILL PUBLICATION

MICH STATE LIBRARY
LANSING MICH 13

The WATERSPHEROID® ...elevated storage tank that blends with any landscape

500,000-gallon Horton Waterspheroid serves the Martin Company, Orlando, Florida

■ Sound engineering . . . modern design . . . creative craftsmanship in steel . . . CB&I combines them all in the Waterspheroid. An extremely attractive, elevated water storage tank, the Waterspheroid compliments any architecture . . . blends with any landscape.

Chances are, you've seen a number of Waterspheroids. They landmark many of the world's most progressive plants and communities . . . providing dependable gravity water pressure for general service and fire protection. A brochure containing details and specifications is available. Write for your personal copy, today. No obligation, of course!

Send for your copy of the Watersphere and Waterspheroid brochure. Ask for Catalog A-40.

E64C

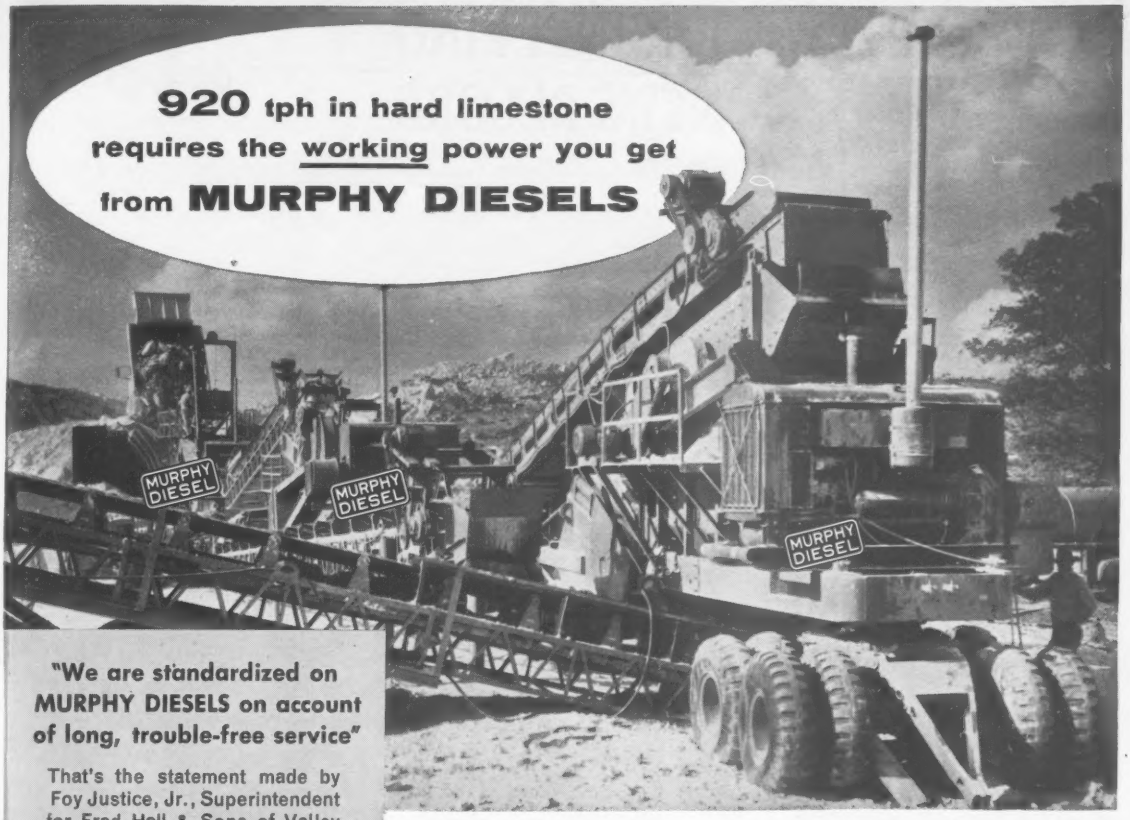
CHICAGO BRIDGE & IRON COMPANY

CBI

332 SOUTH MICHIGAN AVENUE
CHICAGO 4, ILLINOIS

OFFICES AND SUBSIDIARIES IN PRINCIPAL CITIES THROUGHOUT THE WORLD

920 tph in hard limestone requires the working power you get from MURPHY DIESELS



"We are standardized on MURPHY DIESELS on account of long, trouble-free service"

That's the statement made by Foy Justice, Jr., Superintendent for Fred Hall & Sons of Valley Mills, Texas. And Mr. Justice has had plenty of experience with the performance of Murphy Diesels . . . they have 13 Murphys powering their Pioneer crushing plants and Northwest shovels to put more power into the job. On the job shown above, power for the crushing units is furnished by two 225 HP (continuous) Murphys, a 177 HP (continuous) Murphy, and a 150 KW Murphy Diesel Generator Set. They are producing crushed limestone for rebuilding U. S. 190 between Belton and Killeen, Texas.

MURPHY DIESEL

PUTS MORE POWER INTO THE JOB

MP Series Murphy Diesel engines and power units are available in sizes from 105 to 320 HP with engine speeds of 1200 and 1400 rpm. "Packaged" generating units are available with capacities ranging from 60 to 188 KW.

Production of 800 to over 900 tons of hard Edwards limestone per hour is no accident! It is good management on the part of Texas contractor Fred Hall & Sons in selecting the right crushing plants *and putting Murphy Diesel Power into the job.* These are the engines that give you the kind of usable, hard-working power needed for crushing.

Murphy Diesels provide good lugging power because of high rising torque to help keep your equipment running at the right operating speed for efficient production and more profit. They give you steady production shift after shift with lowest engine maintenance costs, plus the economy and dependability of "true diesel" operation. Your Murphy Diesel Dealer has the facts. See him today.

428-N

MURPHY DIESEL COMPANY

5321 W. Burnham St., Milwaukee, Wisconsin

SALES . . . PARTS . . . SERVICE

Throughout the Nation

12 Floors...90 Days

Symons Steel-Ply Forms in 20'x8' Gang Sections

. . . Re-Used 20 Times on 580 Unit Housing Project

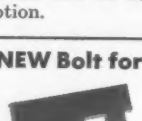
McCarthy Brothers Construction Company, St. Louis, used Symons Steel-Ply Forms to gang form the Anthony W. Webbe Apartments, a public housing project in St. Louis.

Gang forming seemed obvious for this job, but quality of pour was most important. This was to be shear walls from the ground through the 12th floor. McCarthy worked with the Vernon L. Goedecke Company, St. Louis, and the Symons engineering department. Symons engineers recommended a ganged section 20' long x 8' high.

It took 25 days to pour the foundations on the 40 x 600 foot structure and approximately 90 pouring days to bring the building through the 12th floor . . . a total of 196,000 square feet of forming in the walls. 15,000 square feet of Symons Steel-Ply Forms were re-used approximately 20 times.

Complete *housing project story* available on request. Symons Steel-Ply Forms can be rented with purchase option.

NEW Bolt for Gang Forming



Permits the ganging of any size Symons Form with regular hardware. Now you can secure all the forms required, together in sections, move the sections in place, insert the ties and the unit is ready for a pour.

COMPLETE INFORMATION AVAILABLE ON REQUEST

Symons

SYMONS CLAMP & MFG. CO.

4265 Diversey Ave., Dept. H-O, Chicago 39, Ill.

Warehouses Thruout the U.S.A.

MORE ***SAVINGS*** *FROM* ***SYMONS***

ENGINEERING NEWS-RECORD

EIGHTY-SIXTH YEAR OF PUBLICATION

ABP ABC MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York- LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600
Washington - REpublic 7-6630

Editor, Waldo G. Bowman

Managing Editor, Arthur J. Fox, Jr.

Senior Editors, Frederick S. Merritt, James B. Sullivan

Transportation—Roads, Railways, Airports, Pipelines, Ports.
Leo J. Ritter, Jr., Edward M. Young, Jr., Joseph F. Wilkinson

Buildings—Commercial, Industrial, Housing; Codes, Specifications
Frederick S. Merritt, David B. Hill, Marianne Friedland, C. W. Griffin, Jr.

Water—Sanitation, Water Supply, River, Control, Power, Irrigation
James B. Sullivan, William W. Jacobus, Jr., Marie Zanfardino

Business—Management, Labor, Finance, Markets, Contracts, Economics
Robert J. Stinson, Charles J. Harding

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Martha Alexander, *Staff Assistant*
Lauress L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Irwin Landau, Nancy Parkes, John C. Greenough, Robert M. Echols

Presentation
Harry W. Jensen, Robert G. Young

Correspondents, Bureaus
Leah Shanks

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Marie Moravsik, Elizabeth Werra, Eleanor Queret
James Webber, Ruth Carlson, *Economics*
William P. Larkin, *Prices, Wages, Indexes*
Evelyn Huber, Charlotte Foster, *Statistics*

Editorial Research and Indexing
Eva Gierat, Rene Hay, Jane Jacobson

Consulting Editors: **Van Tuyl Boughton, Nathan A. Bowers**

Advertising Sales Manager: **Donald S. Robertson**

Circulation Manager: **Edward F. Bressler**

Washington Bureau, National Press Bldg., Washington 4, D. C., **George B. Bryant, Jr.,** Chief, **Alan Adams, Glen Bayless, Roy Calvin, Anthony DeLeonardis, John Donaldson, Jay Flocken, Boyd France, Donald Loomis, Gladys Montgomery, Arthur Moore, Seth Payne, Dean Reed, Morton Reichek, Caroline Robertson, Dave Secrest, Vincent Smith.**

Domestic News Bureaus: Atlanta—801 Rhodes-Haverty Bldg., B. E. Barnes, Chief, Frances Ridgway; **Chicago**—520 N. Michigan Ave., Stewart Ramsey, Chief, Bruce Cross, Lois Dubin; **Cleveland**—55 Public Square, Arthur Zimmerman, Chief, Violet Forsha; **Dallas**—901 Vaughn Bldg., Marvin Reid, Chief, Lorraine Smith; **Detroit**—856 Penobscot Bldg., Donald MacDonald, Chief, Sally Ayling, Wesley Perry, Jr.; **Los Angeles**—1125 W. 6th St., Kemp Anderson, Jr., Chief, Michael Murphy, Marvin Petal; **San Francisco**—68 Post St., Jenness Keene, Chief, Donald Winston, Alison Hunt; **Seattle**—6040 Fifth Ave., N.E., Ray Bloomberg.

Foreign News Bureaus: London—John Shinn; **Paris**—Robert Farrell; **Mexico City**—Peter Weaver; **Bonn**—Morrie Helitzer; **Beirut**—O. M. Marashian; **Tokyo**—Sol Sanders; **Rio de Janeiro**—Leslie Warren; **Caracas**—John Pearson; **Moscow**—Ernest Conine.

Correspondents: In 70 principal U. S. cities and 70 cities throughout the world.
Director of News Bureaus: John Wilhelm; **Managing Editor,** Margaret Ralston.
McGraw-Hill Economics Department: Dexter M. Keezer, Director.

Publisher, Robert F. Boger

ENGINEERING NEWS-RECORD, Vol. 165, No. 5, August 4, 1960

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Printed at Albany 1, N. Y. See panel below for directions regarding subscriptions or change in address. **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** OFFICERS OF THE PUBLICATIONS DIVISION: Nelson L. Bond, President; Shelton Fisher, Wallace F. Traendly, Senior Vice Presidents; John R. Callaham, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. OFFICERS OF THE CORPORATION: Donald C. McGraw, President; Joseph A. Gerardi, Hugh J. Kelly, Harry L. Waddell, Executive Vice Presidents; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary. **Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20 per year, payable in advance. Second-Class mail postage paid at Albany, New York. Printed in U.S.A.

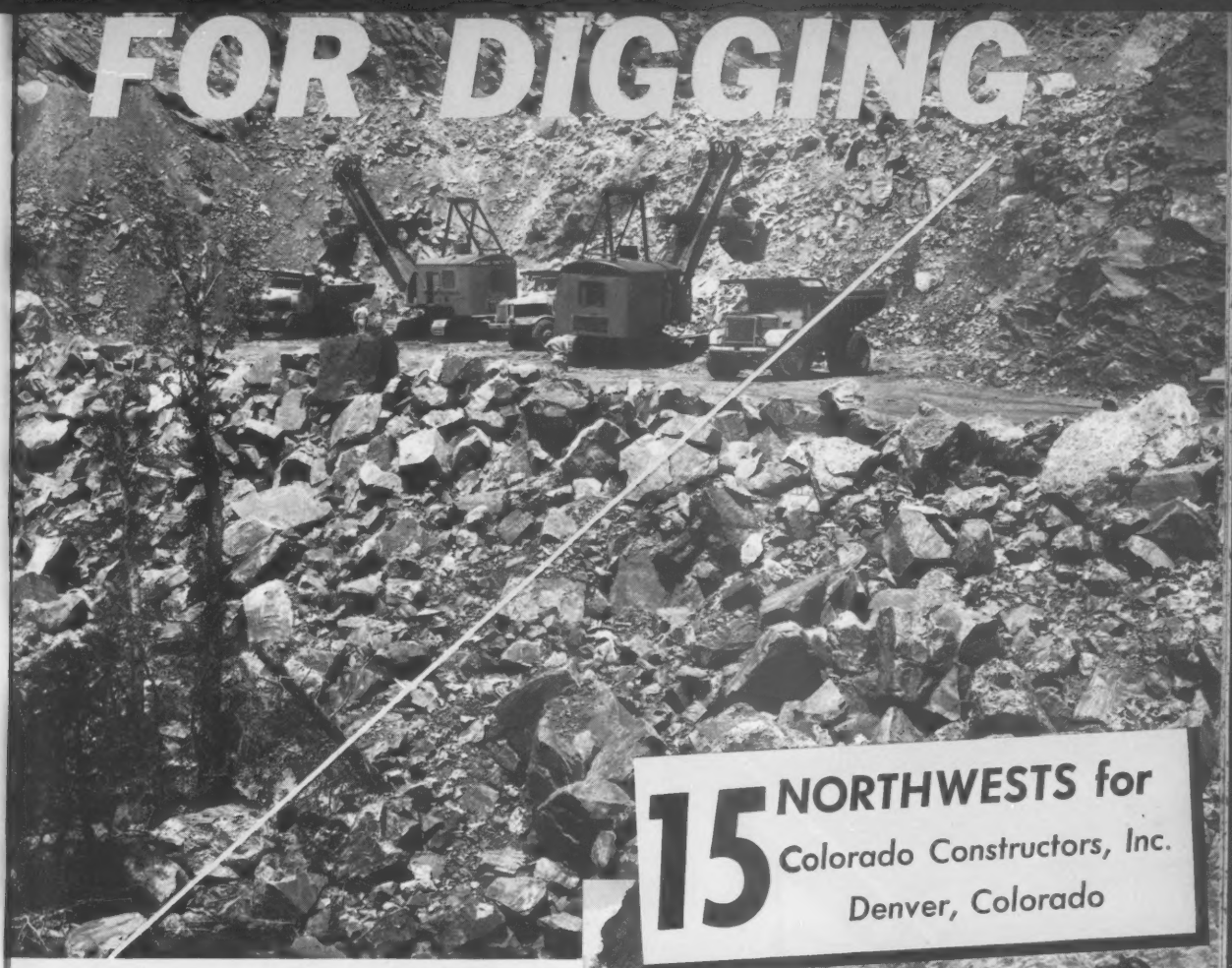
Title registered in U.S. Patent Office. ©Copyright 1960 McGraw-Hill Publishing Co., Inc. All Rights Reserved.

UNCONDITIONAL GUARANTEE: We agree, upon request to our New York office, direct from paid-up subscribers, to cancel any subscription if ENGINEERING NEWS-RECORD's editorial service is unsatisfactory, and will refund the proportionate subscription price of any unmailed copies.

SUBSCRIPTIONS: Send subscription correspondence and change of address to Fulfillment Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify, publisher *promptly of any change of address, giving old as well as new address, and including postal zone number,* if any. If possible enclose an address label from a recent issue of the magazine. Please allow one month for change to become effective.

Postmaster: Please send Form 3579 to Fulfillment Manager, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

FOR DIGGING—



15 NORTHWESTS for Colorado Constructors, Inc. Denver, Colorado

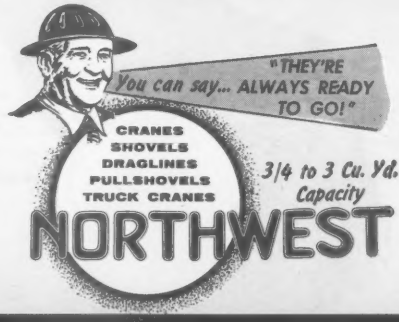
that separates the shovels from the toys

HERE's the kind of digging that breaks the heart of an operator with an ordinary rig under him. It's the type of digging that separates the *real* Rock Shovels from the toys. Two Northwest 80-D's are pouring it on to clear out the granite rock leading to a tunnel heading in widening U. S. Highway 40-6 near Idaho Springs, Colorado. The contractor is Colorado Constructors, Inc. of Denver and the new 80-D to the left is the fifteenth Northwest Colorado Constructors has bought.

Here are fourteen testimonials to performance in country where the backbone is Rock and only top performance can satisfy people like Colorado Constructors, Inc.

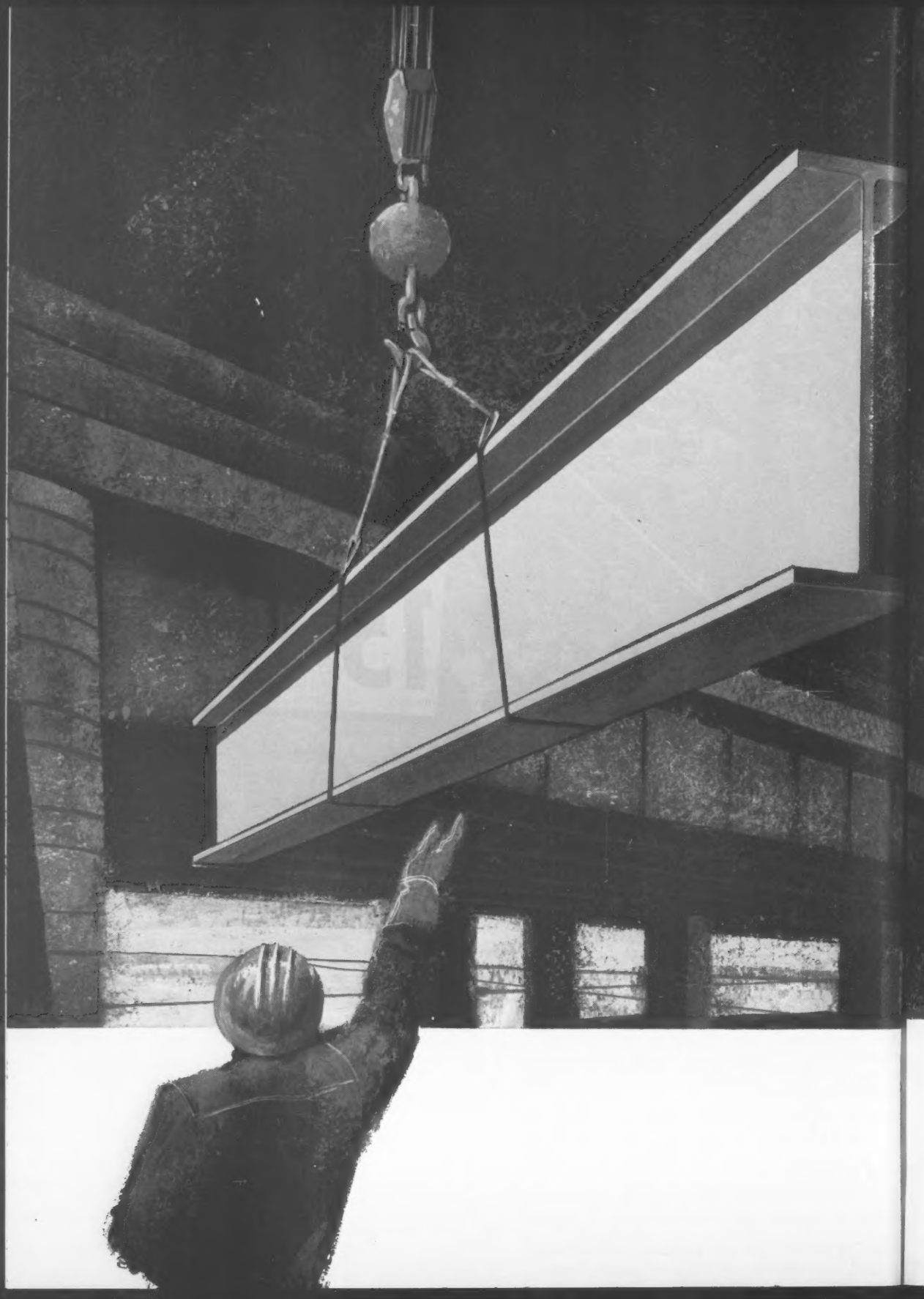
Your Northwest is a *real* Rock Shovel. It brings you the advantages that get the job done—the things that permit you to say, "That Northwest is always ready to go."

They are the advantages backed by the quality that makes the Northwest the finest machine of its kind.



NORTHWEST ENGINEERING COMPANY
1501 Field Building • 135 South LaSalle Street
Chicago 3, Illinois

S-80-12-1



ASTM A-36

Available Now!

Structural Carbon Steel

9% higher yield point

United States Steel announces the availability of the newly adopted American Society for Testing Materials Specification ASTM A-36-60T Steel for Bridges, Buildings and General Construction. This new grade will be produced in wide flange beams, plates, standard structural shapes and bars.

Compared with ASTM A-7 structural steel, A-36 has a 9.1% higher yield point—permitting significant weight savings.

From a welding standpoint, A-36 compares favorably with ASTM A-373.

Chemical Requirements

		Shapes	Bars		Plates		
A-7	C max.	....	....		....		
	Mn	....	....		....		
	Si	....	....		....		
			¾" & Under	Over ¾" to 4" Incl.	¾" & Under	Over ¾" to 1½" Incl.	Over 1½" to 4" Incl.
A-36	C max.	.28	.28	.28	.28	.28	.28
	Mn	....	....	.60/.90	....	.80/1.10	.85/1.20
	Si	....	....	....	....	....	.15/.30

		Other Than Heavy W.F.	Heavy W.F. 10" to 36"	1" & Under	Over 1" to 4" Incl.	½" & Under	Over ½" to 1" Incl.	Over 1" to 2" Incl.	Over 2" to 4" Incl.
A-373	C max.	.28	.28	.28	.28	.26	.25	.26	.27
	Mn	....	.50/.90	....	.50/.90	....	.50/.90	.50/.90	.50/.90
	Si	....	....	....	....	....	....	.15/.30	.15/.30

Mechanical Properties

	A-7	A-36	A-373
Yield Point, min psi	33,000	36,000	32,000
Tensile Strength	60/75000	60/80000	58/75000
Elongation, 8" min %	21	20	21
Elongation, 2" min %	24	23	24

The higher yield point will allow an increased design stress of about 10% in both bridges and buildings and therefore will result in significant cost savings in fabricated and erected structures.
Write to United States Steel or any of the Divisions shown below if you would like more information about ASTM A-36. Better yet, call us.

USS is a registered trademark

USS

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company
United States Steel

Knockout punch! In seconds, fire can have your business on the ropes. Keep your guard up by protecting storage rooms for volatile solvents, gases, flammable liquids with a *fully-automatic* Kidde carbon dioxide extinguishing system. U.L. and F.M.-approved Kidde systems actuate at the first flash of fire, smother it in seconds, leave no mess, turn off power and sound an alarm. Kidde's 35 years' experience can help you protect *any* hazard. Write today and find out how.

Kidde

Industrial and Marine Division
Walter Kidde & Company, Inc.
844 Main St., Belleville 9, N. J.
Walter Kidde & Company of Canada Ltd.
Montreal—Toronto—Vancouver

Reader Comment

Codemakers Need Help

SIR—Your editorial "Work for Better Codes" (ENR June 16, p. 96) was very well put and is something all responsible people in the building industry should read. The organizations promulgating codes and the state and local governments administering those codes should both have advisory committees made up of qualified architects and engineers who would keep the codes up to date and assist building officials in making intelligent non-routine decisions.

It is perhaps inevitable that practice will lead the codes. Indeed the codes depend on practice as well as research in order to establish practical criteria. Still, even after all the evidence is in, there is the time-consuming work of getting the material incorporated into the codes.

Often the codes themselves do not stop progress provided that they are administered by technically competent code and building officials who can evaluate new materials and methods on a rational basis. The help of advisory committees can be of great assistance.

Many of us are probably skeptical of things we do not understand. Hence it is not unexpected to see some building officials veto new materials and methods under the pretense of protecting the public. Actually they can be withholding better and more economical construction. There is no substitute for technical competence in such positions and I hope that eventually the public will insist that the local building departments be given the help they need to accomplish their important job.

NORMAN L. SCOTT
Executive Secretary
Prestressed Concrete Institute

Off-the-Job Safety

SIR.—The construction industry today has an opportunity for public service that should not be neglected. It should join public officials in a determined effort to cut down the shameful slaughter on our highways.

This can best be done by the extension of company safety programs to include off-the-job accident prevention. Our industry is unusually well-equipped to render this urgent public service, through its established safety depart-

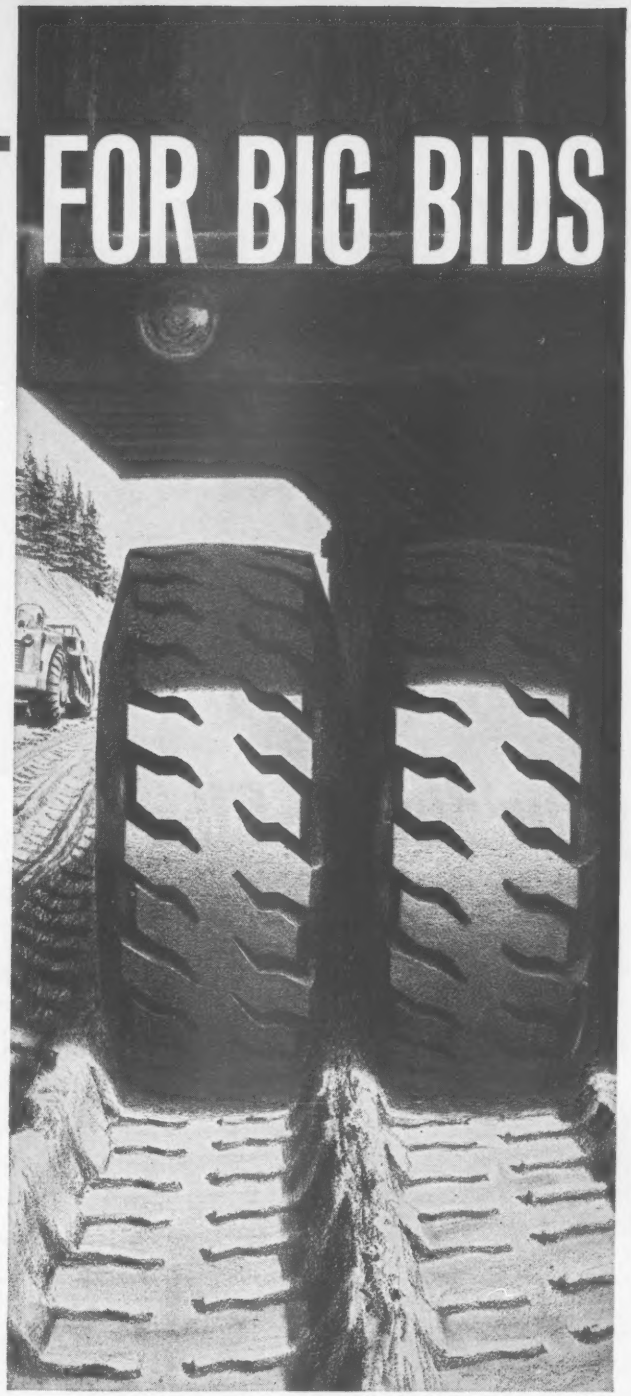
(*Reader Comment continued p.* 11)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

GOODYEAR

BEST BET FOR BIG BIDS

Let Goodyear show you ways to cut your tire costs



Competition for big jobs keeps you on your toes. That's why it pays to do everything possible to protect your profit margin. And much of your success on the big jobs rides on the tires you use.

Your Goodyear Big-Tire Specialist knows what problems you face in terrain, roads, climate, schedules and speeds. And he knows which tire is best for each need and how to keep costs in line. When you call him in for an analysis, you are assured his recommendations on tires will come from the most complete line of the world's toughest earthmover tires.

He's ready with On-The-Job Service whenever you need it. Goodyear Contractor Service means that you can have a tire-maintenance program on-the-job. This service is geared to save man-hours, machine-hours and tire life.

Plus — BIG-TIRE PERFORMANCE Example: SUPER ROAD LUG

Jounce it over the roughest terrain and the Goodyear Super Road Lug shrugs off flexing, cuts and piercing blows. Reason? This tire embodies new and advanced super-toughening agents that make it super-tough on wear. What's more, rugged 3-T Processed Cord (nylon or rayon) — triple-tempered by Tension, Temperature and Time — give you unequalled tire strength and stamina.

Why not get the full story on the performance and savings that make the Super Road Lug your best bet for big jobs — and details on Goodyear Contractor Service — *before* your next bid. Just call your Goodyear dealer — or write Goodyear, Truck Tire Department, Akron 16, Ohio. Remember, lots of good things come from Goodyear.

Road Lug — T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

World's Toughest Truck Tires by

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

How Payscraper® "automotive" operating ease highballs your dirt-on-fill delivery

You won't need stunt-car "jockeys" or muscle men to give you the dirt-on-fill bonus the 375-hp International Payscraper rigs can deliver! Almost all the danger, hard work, and rump-bumping of rubber-tired rig operation is engineered out of Payscraper models. And an exclusive combination of operating ease, safety, and comfort features is engineered in!

Push-button, finger-tip ease! Your operator simply pushes a button to direct-start the DT-817 Diesel and ready 375 high-torque hp to give a cycle-speeding Payscraper rim-pull of 60,000 lbs.; plus time-saving, "no-lag" control power!

Your operator pulls directly out of 90° turns—with 34-cu. yd. heap loads on either the 2-axle "295" or 3-axle "495." Ample power and traction team with the exclusive International tandem-pump, rack-and-pinion steering to give positive, right-angle turning with full power. This finger-tip controlled system leaves the "steering feel in the steering wheel," even at the top 33.5 mph speed.

For fast, positive dumping, the high Payscraper apron lift gives you a "barn-door-like" opening up to 94 inches! The positive-acting Payscraper ejector mechanism is powered by the International shock-absorbing, planet-type Cable Control Unit. One cable drum of this simple, fast acting unit actuates apron and ejector; the other drum positions the bowl to control spreading action. Shown, the 3-axle "495" fast-dumping on the fill.

He power-shifts the Payscraper, up or down almost like easing his car into automatic drive. The 4-speed, planetary-type, torque-converter transmission gives him load-speeding *automatic* direct-drive lock-ups in second, third and fourth gears!

Your operator power-steers the 150,000-lb. loaded Payscraper with automotive-like ease. He commands the exclusive "mind-reading" International rack-and-pinion, tandem-pump steering system—plus 3-degree forward spindle pitch that improves scraper balance and prevents "bucking bronco" nose-downs in high-speed turns!

He controls 34 cu. yd. loads on hills, fills, turns—anywhere—with positive-acting Payscraper air brakes. He power-controls all Payscraper dirt-handling actions, finger-tip easy, with the International PTO-driven constant running cable control unit!

And he rides in a foam-cushioned, 15-adjustment, bucket seat that gives positive, selective ride-control to match luxury car comfort.

See for yourself what it means, in highballing your dirt-on-fill delivery, to arm your operators with Payscraper advantages. Prove what happens when you give them the highest power-to-payload punch of the 34-cu. yd. rigs—along with Payscraper operating ease and safety. Choose the 2-axle "295," or 3-axle "495" and let your International Construction Equipment Distributor demonstrate!

Up or down power-shifting—effortless power-steering—fast power control of Payscraper dirt-handling—all help your operator give you fast "kick-outs" and get full pusher hp efficiency. The highest power-to-payload punch of all 34-cu. yd. scrapers helps highball dirt delivery. The planet-powered TD-25 and TD-24 are "pushing" for this fleet of "295's"—building superhighway!

Here's the big torque converter transmission—that helps Payscraper models turn 375 turbocharged hp into industry topping production! Besides providing smooth shifting and speeds for every need, this torque converter gives automatic lockup for direct, load-speeding mechanical drive in 2nd, 3rd, and 4th gears!

International® Construction Equipment

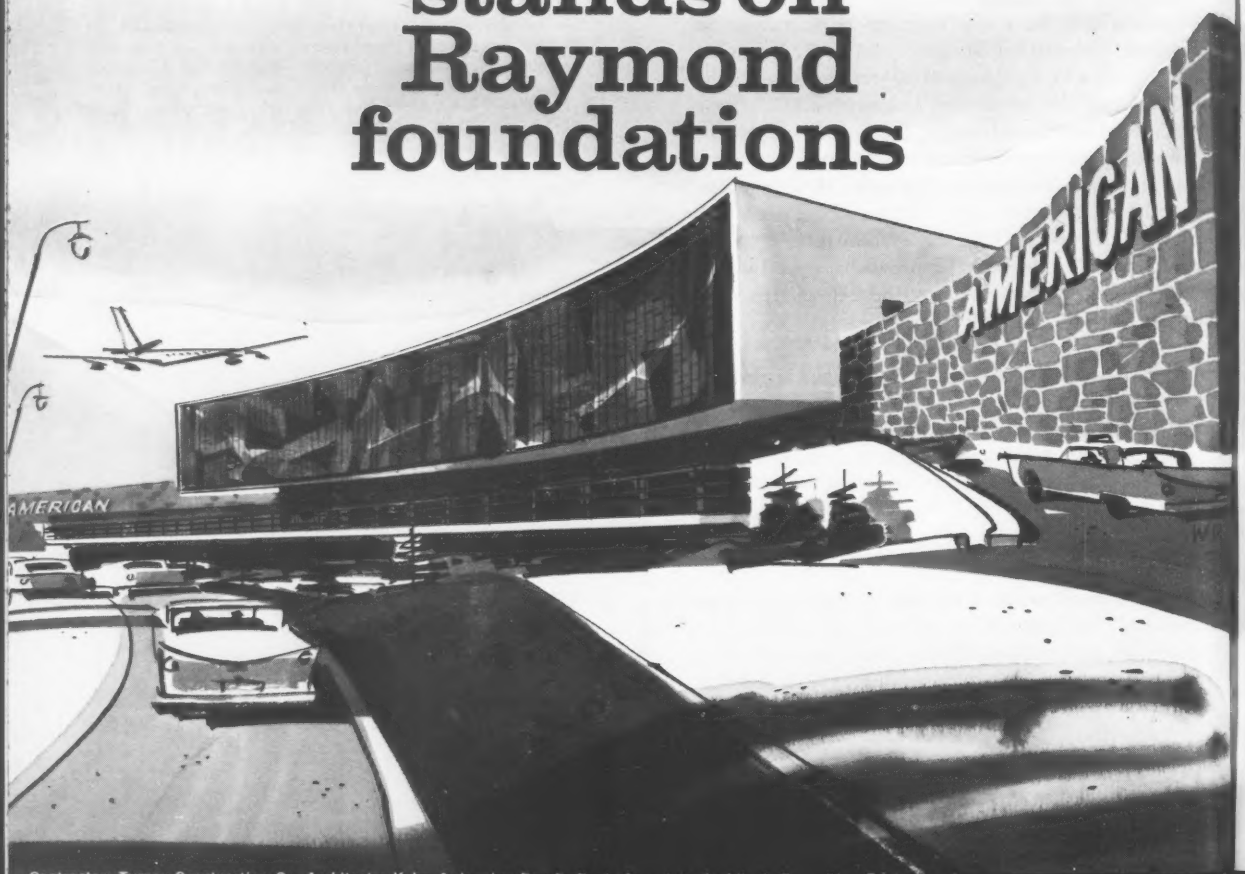
International Harvester Co.,
180 North Michigan Ave., Chicago 1, Ill.
A COMPLETE POWER PACKAGE

A sensational, block-long stained glass facade distinguishes American Airlines' new terminal at New York's International Airport. Designed in the "customer-centered" concept, it includes such conveniences as covered jetways that move from lounge to liner, split-level construction to promote smooth flow of traffic, restaurant and bar facilities, and private dressing rooms and showers for passengers. A complex machine in itself, this terminal rises on a foundation of 1635 Raymond step-taper, standard and wood piles. On thousands of projects huge and small, Raymond plays a vital though unseen role in linking the nation together. Ground-bound and prosaic indeed, Raymond foundations support many of the finest structures in America's communications network. Whether or not your next project presents any special foundation problems, and regardless of its nature or size, we shall be happy to consult with you.

CONCRETE PILE DIVISION
RAYMOND
INTERNATIONAL INC.
140 CEDAR ST., NEW YORK 6, NEW YORK
Branch offices in the principal cities of the United States. Subsidiaries in Canada. Central and South America and other countries around the world.

Foundations for the Structures of America • Complete Construction Services Abroad

New jet air terminal stands on Raymond foundations



Contractor: Turner Construction Co. Architects: Kahn & [illegible]

ments. We urge all construction companies to join in this effort. The benefits are both numerous and varied.

Before the July 4 weekend we made an effort to tell our employees that safety has no quitting time. This effort to extend our own safety program met with excellent response, not only from our own employees but from newspapers and public officials, too. In addition, it elicited a spirit of safety consciousness on-the-job, that brought renewed and lively interest into our entire safety program.

Ours is a hazardous industry with a not-too-good accident record. By taking this opportunity to help cut down the highway toll, we will not only be performing a public spirited duty, but we will also be improving our own accident records. The important fact is that off-the-job safety improves on-the-job safety as well.

GENE WASSERMAN
Wexler Construction Co., Inc.
Newton Highlands, Mass.

Wrong Title

SIR—In the article on the space truss roof for the Upjohn Company plant (ENR May 19, p. 55) Bruce J. Graham was designated as senior structural designer. He was the senior architectural designer.

WILLIAM E. DUNLAP
Skidmore, Owings & Merrill
Chicago, Ill.

For your calendar . . .

American Public Works Congress and Equipment Show, New York Coliseum, New York City, Aug. 14-17. Write: Don Rodda, Department of Sanitation, 125 Worth St., New York 13, N. Y.

American Society of Civil Engineers, Hydraulics Division, national conference, Seattle, Wash., Aug. 17-19. Write: Ronald E. Nece, University of Washington, Department of Civil Engineering, Seattle 5, Wash.

Symposium on Water Quality Measurement and Instrumentation, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, Aug. 29-31. Write Director, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Parkway, Cincinnati 26, Ohio.

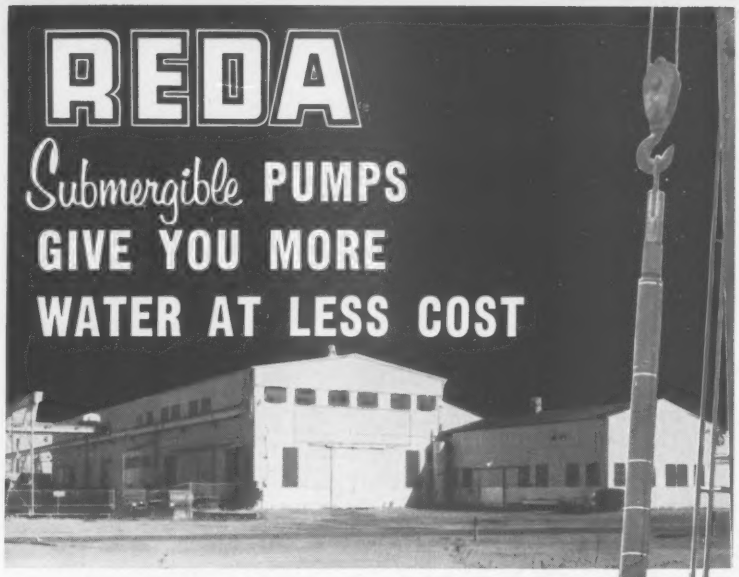
Second National Conference on Electronic Computation, American Society of Civil Engineers, Pittsburgh Hilton Hotel, Pittsburgh, Pa., Sept. 8-9. Write: Wilfred Bauknight, Corps of Engineers, 925 New Federal Building, Pittsburgh 19, Pa.

American Welding Society, fall meeting, Penn-Sheraton Hotel Pittsburgh, Pa., Sept. 26-29. Write: American Welding Society, 33 W. 39th St., New York 18.

American Society of Civil Engineers, annual meeting, Hotel Statler Hilton, Boston, Oct. 10-14. Write: E. S. Kirkpatrick, American Society of Civil Engineers, 33 W. 39th St., New York, N. Y.

Prestressed Concrete Institute, annual convention, Hotel Statler Hilton, New York City, Sept. 27-30. Write: P. Stauffer, 131 Cedar St., New York 6, N. Y.

American Society for Metals, 42nd National Metal Exposition & Congress, Trade and Convention Center, Philadelphia, Pa., Oct. 17-21. Write: Chester L. Wells, Exposition Manager, American Society for Metals, 7301 Euclid Ave., Cleveland 3, Ohio.



A complete line of models from ⅓ to over 500 H.P. provide capacities from 5 to over 1,000 gpm for wells as deep as 10,000 feet. As there are no belts, drive shafts, and no special piping is required, installation is easier and less expensive. Reda Pump Operating costs are low with little or no maintenance. Power costs are approximately 1¢ per KWH per horsepower and even lower.

Over 100,000 Reda installations for farms, ranches, industries, municipalities, etc. attest to the confidence users place in the ability of Reda Submergible Pumps to give them economical dependable water supply.

Write for Bulletin R-432. . .Complete information will be promptly furnished.

SIGN OF QUALITY SUBMERGIBLE REDA PUMPS

REDA PUMP COMPANY
BARTLESVILLE, OKLA.

Manufacturers of electric submergible motors and pumps for over 40 years.
Pumps for Oil, Brine, Water, LPG, Gasoline, Jet Fuel.

the
CONSTRUCTION DAILY – tells you
WHERE to look for new business
WHAT'S happening to costs & prices
HOW to plan for future business
Only $225 per year
It gives you a big jump on new business opportunities—it pays off in new contracts
WRITE: CONSTRUCTION DAILY, P O Box 89, Times Square Station, New York 36, N. Y.

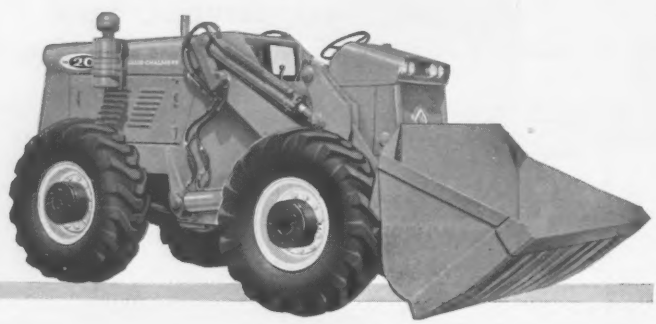
BEST STABILITY IN THE BUSINESS

The Allis-Chalmers TL-20 gives you a higher wheelbase to length ratio for added fore and aft stability. You carry big loads at high speeds with minimum spillage.

The 130-hp Allis-Chalmers TL-20 tractor loader gives you the kind of stability you need to move big loads fast over the roughest terrain . . . without tipping or spilling the load. Long 7-ft, 9-in. wheelbase is 43 percent of over-all length with bucket at carry. This gives the TL-20 a higher wheelbase to length ratio than other loaders of this size.

Extra stability is just one reason why you get extra production with the 11½-ton TL-20. Other profit-producing advantages are: *Single-lever speed and direction control; pin-connected axles* that eliminate shifting and rolling under load; *5-way hydraulic filtering* that provides maximum protection; *extra-long reach* for faster and easier dumping; and *well-located dump cylinders* that are up and out of dirt for better performance . . . longer life.

Ask your Allis-Chalmers dealer about the complete line of tractor loaders—5 models—with buckets from 1 to 5 cu yd, 76.5 to 130 horsepower. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



move ahead with

ALLIS-CHALMERS

power for a growing world

ALLIS-CHALMERS
TL 20

27′ OF WATER...OUTSIDE-LOOKING IN!

Owner: N. J. State Highway Dept. Pumping Contractors: American Dewatering Corporation, Rockaway, N. J.

Within the protection of an earth-filled cofferdam kept dry by Moretrench Wellpoints, Public Constructors, Inc., of Blackwood, N. J., excavate for Piers #5 and #6 for a bridge over the Passaic River —part of the new Route 80 Expressway which sweeps westward across the state.

This is part two of a $2,758,000 contract. Five piers on the opposite side of the river were constructed in the same economical way.

Soil consists of layers of silt, sand, gravel and bog with hardpan at subgrade. Moretrench Wellpoints successfully stabilized this material. They

- eliminated costly sheeting,
- freed the contractor to excavate rapidly with a dragline,
- effected many other economies which are possible only when you work—*in the dry*.

Ask us for a realistic estimate on water control for your wet job.

Moretrench Corporation

389 Main Street
Hackensack, N. J.
HUbbard 9-7676
New York Tel.: CO 7-2283

4900 S. Austin Ave.
Chicago 38, Illinois
POrtsmouth 7-4212

7701 Interbay Blvd.
Tampa 9, Florida
TAmpa 61-1881

315 W. 25th St.
Houston 8, Texas
UNderwood 4-7774

Rockaway
New Jersey
OAkwood 7-2100

WESTERN REPRESENTATIVE: Andrews Machinery of Washington, Inc., Seattle 4, Washington
CANADIAN REPRESENTATIVE: Geo. W. Crothers Limited, Toronto, Ontario
BRAZILIAN REPRESENTATIVE: Oscar Taves & Co., Ltd., Rio de Janeiro

ENGINEERING NEWS-RECORD
Vol. 165, No. 5 August 4, 1960
Number of copies printed in this issue 86,273

CONTENTS

The Campaign and Construction 19
Where the Parties Stand 21
$6-Million Radio Telescope 22
Plenty of Planning Time for '62 Roadbuilding .. 22
Stresses Set for A36 Steel 24
No More Bidding for Basebuilding? 26
Back to the Old Drawing Board 26
Precast Concrete Clad in Steel 27
Engineer Education in the U.S.S.R. 27
Channel Tunnel Backers Revise Financing Plans .. 27

FEATURES

Improved Design in Asphalt Plant Ups Production 30
Floating Gate to Enclose Big Dry Dock 33
Canada's Biggest Earthfill Goes Year 'Round .. 34
Giant Steel Frame Spans Big Gymnasium 40

INTERNATIONAL

Malay Federation Gets New Harbor 43

FIELD AND OFFICE

Composite Design Strengthens Floors 48
New Detail Cuts Anchor-Bolt Cost 53

NEW PRODUCTS

Crane Stays on Top of the Job 55
Transmission Has Triple Purpose 55
New Chemical Solidifies Water 56

MEN AND JOBS 63

BUSINESS AND FINANCE

U. S. Promoter Beats Congo Drum 81
July Contracts Top $2 Billion 82
Cost Indexes: One Up, One Down 82

LABOR

Unions Undaunted by Stiff Bargaining 85
Union Turns to Politics 86
UAW Questions Contracting Out 86

Reader Comment 6
Calendar 11
Washington Observer 17
Unit Prices 67
Materials Prices 68
Construction Reports. 70
Statistics, Indexes ... 77
Editorials 100

Picture Credits

Cover—Wide World; 19—Wide World, right, UPI; 30, 31—ENR; 35—Prairie Farm Rehabilitation Adm.; 40—Serge de Sazo; 41—P.M.W. & Co.; 48—Nelson Stud Welding.

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

CHESAPEAKE BAY CROSSING BEGINS—Construction begins next month on the long-delayed bridge-tunnel crossing of Chesapeake Bay. The way was cleared this week with the sale of a $200-million bond issue to finance the 17½-mile project. Redesign of the four islands that will anchor the tunnel brought a contract price of $121.8 million, about $5 million less than estimated a year ago, and cut estimated construction time by six months. Completion is now scheduled for October, 1963. Consulting engineers are Sverdrup and Parcel of St. Louis. Construction was delayed because the bond issue couldn't find takers.

FAST CONCRETING—A Japanese firm claims a new one-day speed record for concrete placement. Hajima Construction Co. says it placed 11,318 cu yd in a recent 24-hour period at the Kansai Power Co.'s Kurobe No. 4 Dam. The fast pace was set with two 25-ton cableways. The old mark, to the best of our knowledge, was 8,376 cu yd at India's Bhakra Dam four years ago (ENR Dec. 20, 1956, p. 9).

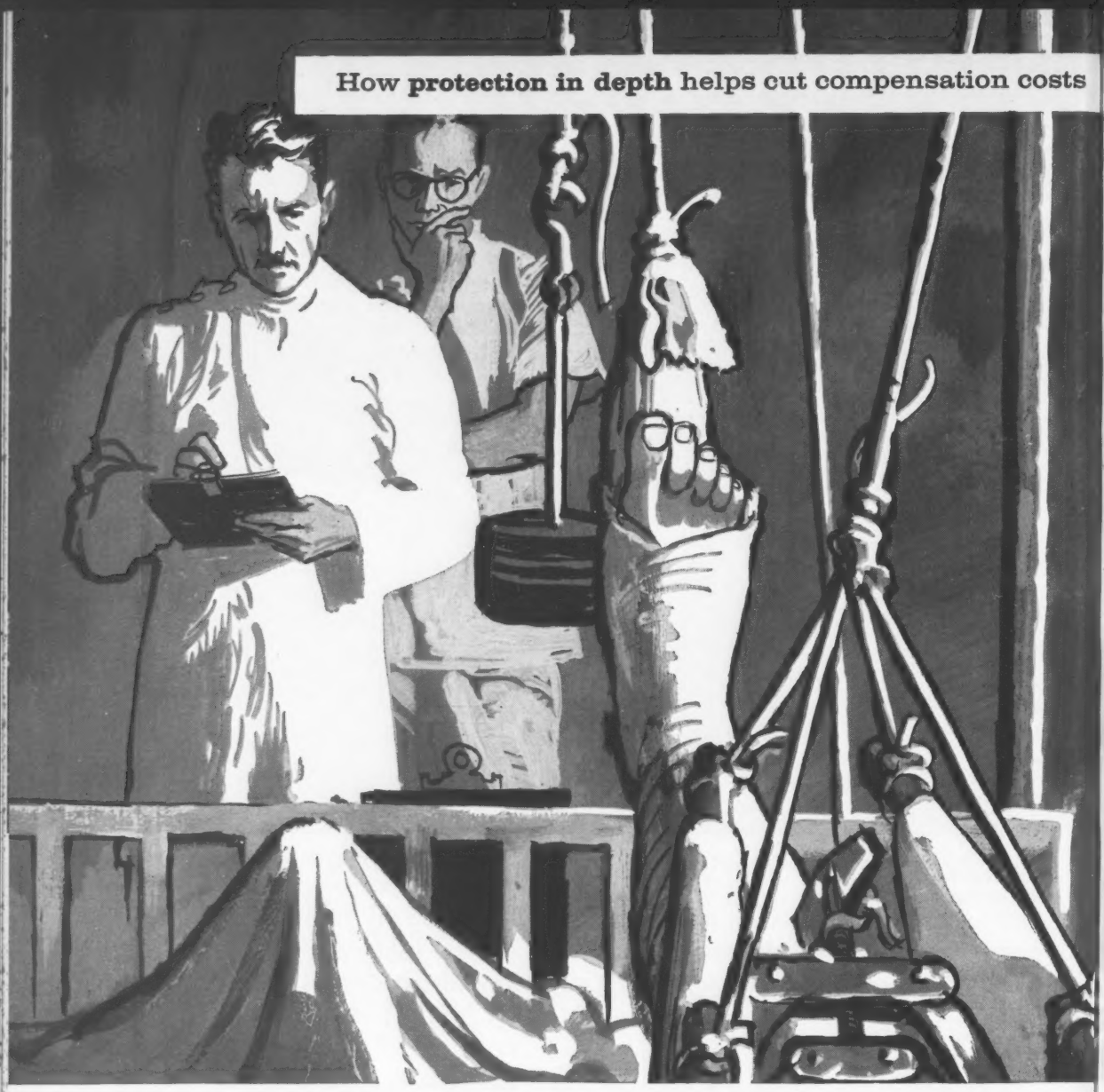
BIG THINK IN TRANSPORTATION—The National Academy of Sciences-National Research Council is picking up the tab for a five-week think session on transportation and its future at Woods Hole, Mass. Meeting in closed sessions, some 180 transportation operators, government officials, economists, scientists and engineers are exchanging ideas.

WHO MEDIATES FOR THE MEDIATORS?—The government of Canada appointed a three-man Royal commission to resolve violent differences of opinion on the location of a new railway line that would connect Northern Alberta Railways north of Edmonton with Pine Point on Great Slave Lake. The result is a complete stalemate, with each member submitting a report of his own.

WEDDING PLANS CANCELED—The idea for a new, jointly owned equipment company has been discarded by Blaw-Knox Co. of Pittsburgh and The T. L. Smith Co. of Milwaukee (ENR June 30, p. 13). Officials say such a concern would not be practical.

WASTE NOT, WANT NOT—Los Angeles County is embarking on a 2½-year study of the feasibility of reclaiming the area's annual 280 mgd of sewage. The tests will be conducted at the city's Hyperion treatment plant. Most of the reclaimed water will be used to replenish ground water, some for industrial and recreational purposes.

FROM LITTLE ACORNS—New York's World's Fair, expected to total $350 million in building and exhibit costs, is starting with erection of a prefabricated temporary administration building estimated at $600,000.



Is clinical diagnosis available to your injured workers?

Leading orthopedic surgeons in 78 cities across the U. S. are available to Liberty Mutual for consultation. They review diagnoses of serious cases, check their progress and advise attending physicians. This medical advisory service helps speed the recovery and return to work of severely injured employees, helps lower workmen's compensation costs for Liberty policyholders. It is but one of the many Liberty Mutual services that add up to protection in depth. For more facts about Liberty's protection in depth and how it can help lower your business insurance costs, just get in touch with your nearest Liberty Mutual office.

Look for more from **LIBERTY MUTUAL**

...the company that stands by you

LIBERTY MUTUAL INSURANCE COMPANY • LIBERTY MUTUAL FIRE INSURANCE COMPANY
HOME OFFICE: BOSTON

Business Insurance: Workmen's Compensation, Liability, Group Accident and Health, Fire, Fleet, Crime • Personal Insurance: Automobile, Fire, Inland Marine, Burglary, Homeowners

WASHINGTON OBSERVER

- Aid plan for Latin America coming
- Safety first in nuclear plants?
- Last Bomarcs out for bid

● **President Eisenhower will offer his public works aid plan for Latin America to Congress when it reconvenes.** (The Senate comes back Aug. 8; the House of Representatives, Aug. 15.) As sketchily described, the program would cost some $500 million, to be financed by loans and some outright grants.

The President outlined the program recently in a move to solidify South American support for the U. S. in the running propaganda war with Fidel Castro.

However, many in South America and some in Washington believe that the Eisenhower program may be too modest to accomplish what the Administration wants.

The package is yet to be spelled out in detail. Congress will be asked only to authorize the idea of a special Latin American aid fund. Money for the program will be sought next January.

The program will be administered primarily by the new Inter-American Development Bank, a $1-billion organization devoted to basic development works such as dams, waterworks and port facilities, transportation and agricultural projects, housing and education.

Most of the money would be earmarked for the so-called non-self-liquidating type of development project—the kind of public construction project that does not offer sure or quick return on private investment. Later, part would be channeled into basic industrialization, export diversification schemes, and the like.

—

● **Construction of a nuclear power plant is going ahead while the issue of its safety is argued in the courts.**

At issue: the Enrico Fermi plant under construction near Detroit by a private utility group. It will provide power for the metropolitan area.

A group of labor unions oppose AEC's granting of the construction license before determining safety of the design. A U. S. Circuit Court of Appeals upheld the union argument, and now the utility group and the AEC are readying an appeal to the Supreme Court for review.

The government fears that if the unions are upheld, construction of other power reactors either under way or planned, will be jeopardized. The lower court stayed any action against the utility group pending Supreme Court review.

—

● **The last of the Bomarc missile bases are about to be built.** The Army Engineers shortly will advertise for bids on two of the antiaircraft missile bases in the continental U. S. Later the program will end with two more sites in Canada.

Twenty-eight Bomarc B launchers will go up at McGuire AFB in New Jersey, and 28 launchers at Otis AFB, Falmouth, Mass. Both now have launchers for the earlier Bomarc A version. Construction cost will be $5 million for each—about $2 million of which will be for launching equipment and prefabricated missile shelters. This could be one of the last times a missile base job goes out for competitive bids (see story p. 26).

New self-parking garage at Third Avenue and Pine in Seattle. Owner: Sierra Corporation. Architect: George Appelgarth. Structural Engineer: Ellison-Sedgwick. General Contractor: Utah Construction & Mining Company

Re-bars from Ryerson . . . 1900 tons reinforce big new Seattle garage

"Ryerson cooperation again excellent"—contractor

This was a job with a tight time schedule. So tight that the contractor built the elevator shaft first to get machinery installed and running as soon as the structure was completed.

This 10-story concrete structure—reinforced with 1900 tons of re-bars from Ryerson—contains 300,000 sq. ft. of space and provides parking for 1270 cars.

Ryerson's "job-timed" re-bar service played an important role in meeting the tight deadline. In addition to providing on-time delivery, Ryerson fabricated the bars, tagged them for positive identification, and furnished setting plans—exactly as the job required.

On your next job, call Ryerson for re-bars or for any of the products and services listed below.

Re-Bars and Accessories • Spirals • Wire Mesh • Post-Tensioning • Open Web Joists • Caisson Rings • Tubing • Structurals • Safety Plate • Stainless Steel and Aluminum • Expanded Metal • Grating, etc.

RYERSON CERTIFIED QUALITY

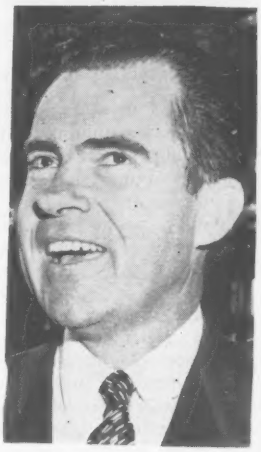
RYERSON STEEL®

Joseph T. Ryerson & Son, Inc., Member of the INLAND® Steel Family

PLANT SERVICE CENTERS: BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT • HOUSTON • INDIANAPOLIS LOS ANGELES • MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • SPOKANE • WALLINGFORD

No matter who wins . . .

- **There'll be a younger man in the White House, a different style in politics.**
- **The change will be felt as early as this month when Congress reconvenes. Here is ENR's report on . . .**



The Campaign and Construction

Federal leadership in public works, school construction, welfare policies and bigger military spending will be more evident in the next four years.

Come January a young man will take over the White House, anxious to make a name for himself as one of the strong presidents of history. There's little doubt that he will swing a new broom, vigorously switching existing policies, upsetting agencies, proposing new legislation to meet the challenges of the '60s, and exercising a kind of personal political leadership that has been deliberately played down in the past eight years.

At stake for the construction industry in particular is the $7 billion of federal money poured annually into highways, housing, hospitals, rivers and harbors and hundreds of other construction projects.

Either Kennedy or Nixon would be a more aggressive president than Eisenhower— quicker to get government into action.

What emerges as the inescapable conclusion from the two conventions is this:

• **The Democrats have made no basic change in direction**—but they have articulated their spend-for-strength-and-welfare ideas more precisely than in many years and they have nominated a candidate pledged to implement them.

• **The Republicans, under Nixon, have made a basic shift in purpose and attitudes.** It has been known for some time that Nixon was restive about Eisenhower's reluctance to yield to rising public demands for such things as aid for school construction and about the restrictive public works policies which, in a symbolic nutshell that applies to several other areas, comes down to "no new starts."

Nixon and the Republicans are promising much less than the Democrats, but this is not the really important point. The point is that Nixon, once he had to take charge and move away from Eisenhower, did it swiftly and with scarcely a look over his shoulder. He grabbed tight control and bludgeoned the reluctant right wing of the GOP into acceptance.

The campaign will reveal two tough, cool and calculating young men full of drive, knocking heads.

Kennedy will emerge as much more "liberal" in promising to build more and bigger dams, more and better highways at a faster pace, to clear out slums and rebuild cities, and to help metropolitan areas solve their mass transit problems.

Nixon will not resist innovation, but the impression of those who know both men best is that the Vice President will emerge as more conservative in fiscal matters than Kennedy. That would mean, in most areas, a little slower pace moving toward pretty much the same goals.

By deliberate choice, the Republican platform adheres to the tradition of vagueness in many areas. Nixon wanted it that way. He takes the position that, when the time comes during the campaign, he can interpret it specifically and better than the 103-member committee could have in setting out what he really stands for.

The Republicans acknowledged at Chicago that they could not "outpromise" the Democrats on domestic issues. Instead, they chose to make their one big campaign pitch on the "We-can-battle-Khrushchev-better" theme. Henry Cabot Lodge was chosen to reinforce that argument in a deliberate gamble to play down domestic issues where another vice presidential choice might have lent more strength.

While the GOP platform applauds the Eisenhower years, there is a between-lines message that comes through loud and clear: Things will be different and more of them will be done in a bigger hurry if Nixon succeeds Eisenhower.

(Turn the page)

ENR's Washington Bureau proves with this report that tight organization pays off in editorial campaigns as well as in politics. With deskmen Glen Bayless and Don Loomis calling the shots, reporter Roy Calvin lined out thousands of words from the conventions in Los Angeles and Chicago. From this barrage of material and the combined expertise of the Washington staff, writer Dave Secrest distilled the construction significance.

. . . The campaign and construction

(Story starts on p. 19)

The Democrats, for their part, will disregard the Republican promises and point to two terms of hold-down-the-budget policies with which Nixon cannot escape identification.

I. The Basic Split

Basic to all other issues is the one on which Republicans and Democrats will differ most sharply—economic growth and money. How much the nation is able to spend on defense, foreign aid or public works will depend on how successfully the economy is expanded. A 5% growth rate, for instance, would yield an extra $40 billion in federal revenues in four years.

The Democratic platform pledges expansion of the economy at a rate of 5% annually and an end to tight money as "a first step." It blames the Administration's tight money policy for the high interest charges on home mortgages and on the national debt. Kennedy, while more conservative than many Democrats on monetary policy, nevertheless broadly endorses the old Jacksonian principles and feels that the President should have a voice in monetary control instead of leaving it up to the Federal Reserve.

The Republican platform also calls for faster growth but states flatly: "We reject the concept of artificial growth forced by massive new federal spending and loose money policies." For the Republicans, the hope for growth lies "in the private sector of the economy." To encourage it Nixon would emphasize such measures as tax reform to stimulate investment, and elimination of featherbedding. Nixon has ridiculed Democratic theory (inspired by Harvard economist John Kenneth Galbraith) as "growthmanship."

One of the unusual features of both conventions this year was the absence of any real talk about a tax cut. The Democratic platform gives lip service to "long-delayed reductions" but Kennedy is willing to raise taxes if necessary to achieve his programs within a balanced budget. The Republicans have also dropped the usual election-year pledge of a tax cut.

II. First Battle

An immediate test of party promises will be made in this month's session of Congress. Democrats will be trying to push through strong measures on school construction, medical aid, housing and minimum wage, and almost hoping for a veto. Nixon's strategy, from all signs, will be to identify himself with the goals of these bills but so water them down that Ike will be able to sign them in clear conscience—or else to kill the bills in parliamentary maneuvers that obscure the blame for their deaths.

On specific domestic problems, Nixon and Kennedy will differ mostly in degree.

Take school construction:

The Democrats have pushed, and promise to push again this month, a bold program of federal grants for both construction and teachers' salaries. Eisenhower was never enthusiastic for much federal assistance to schools but reluctantly put forward a program for long-term (30-year) payments to help local school districts repay the principal and interest on school bonds, a program that would cost the federal government only a few million dollars a year instead of the $1 billion or $2 billion the Democrats' bill would cost.

But Nixon, knowing that the Eisenhower bill had no chance in Congress, has worked **hand-in-glove** with Health-Education-Welfare Secretary Arthur S. Flemming for a compromise with the Democrats—grants on a scaled-down basis, with states matching federal funds all the way and with a local option for financing through bonds. In the White House, Nixon would be much freer to make this kind of compromise with a Democratic Congress.

The Democratic platform pledges unequivocally to work for two million new homes every year. The industry regards this as quite unrealistic; still, it is indicative of the targets the party is willing to get behind as a goal. Kennedy has a solid record of voting for big housing bills and urban renewal.

In Nixon's voting days as congressman and senator he voted quite consistently against such measures. But in the last few years he has been more liberal. While Eisenhower stuck to his debt-service proposal for college housing (federal government helping to pay off principal and interest over 30 years), Nixon again was working with Secretary Flemming toward a compromise with the Democratic effort to renew the low-interest loan program under FHA. Nixon promoted a loose plank in the platform on college housing which leaves him room to manipulate, if he desires the kind of "liberal" program he would not have been able to get through the convention. The GOP platform speaks only of "a federal program to assist in construction of college housing."

Or take military spending, which involves a great deal of construction:

The Democratic platform is highly critical of the U. S.'s "inadequate" defense posture, and Kennedy speaks of the need to spend $2.5 billion more per year immediately.

But the Republicans, under prodding from Governor Rockefeller, who flatly wants to spend $2.5 billion to $3 billion more for defense, have moved into much the same position. One of the extraordinary events of the GOP convention was that, while the delegates roundly cheered Ike's "indignation" at charges that he has let defense slip, they endorsed a platform that places "no price ceiling on America's security" and can only be interpreted one way—a call for more spending on missiles and missile base hardening and dispersal.

III. Operating With Congress

Whatever the platforms say—and many political pros in both parties could not care less what they say—the President elected in November must work through his own party chiefs in Congress to get anything done.

Here Kennedy is in a stronger position than Nixon. Congress, by all signs, will be in Democratic hands. The Republicans cannot possibly win the Senate and could take the House only if there is a Republican landslide. Kennedy, in picking Lyndon B. Johnson as his running mate, has apparently strengthened his hand with the Democratic wing in Congress that might oppose his programs—mainly the southerners. Where Kennedy's power as President might fail to persuade, Johnson's personal prestige with the powerful southern committee chairmen might succeed. The Democratic platform also promises, in effect, a purge of the House Rules Committee, which has sand-trapped many "liberal" measures.

Nixon would be less fortunate. He would be the head of a split government, without Eisenhower's unique public prestige that time and again was equal to the spending pressures of a Democratic Congress. In addition, Nixon's party leaders in Congress would be mostly in the conservative wing of the party, which may have been routed at Chicago but will be very much in charge in Washington. Moreover, while the Democrats disagreed with Eisenhower on many scores, they did not dislike him personally. Many of the Democratic leaders have an intense personal dislike for Nixon, which will make his job more difficult.

On the plus side, the Nixon policy of firm personal leadership is counted on to get some results in Congress that the less aggressive Eisenhower method could not produce. Should he be elected after convincing the voters that he is the man who has the answers to security and national defense, Nixon would not be lacking in public prestige of his own.

Where the Parties Stand

issue	Democrats	Republicans
ECONOMIC GROWTH	Double rate of growth to 5% by ending high interest, tight money policy, encouraging maximum employment, restraining "administered prices," spending more for public purposes.	Increase rate of growth by stimulating private sector of economy, tax reform, eliminating featherbedding. No big spending or easing of money to attain a fixed percentage of growth.
HOUSING	Kennedy has consistently supported public housing, slum clearance. Platform sets goal of two million homes per year, low interest loans.	Nixon voted generally against public housing, slum clearance. Platform promises "adequate authority" for loans for low-middle-income housing.
DEFENSE	Platform calls for strengthened, balanced forces; Kennedy favors $2.5 billion increase.	Platform favors spending "whatever is necessary," suggests increased budget, but sets no figure.
SCHOOL CONSTRUCTION	Grants for construction and teachers salaries.	Federal aid, but with emphasis on local effort.
COLLEGE HOUSING	Grants for construction of academic facilities as well as dormitories.	Platform mentions only "assistance" in construction of college housing. Nixon has backed loan guarantees and long-term assistance on debt retirement to replace low-interest loans.
TIGHT MONEY	Platform says: "A Democrat will put an end to the present high interest, tight money policy."	"We reject" economic growth by loose money.
SMALL BUSINESS	More loans, advance notice of mergers, fewer negotiated contracts.	Continued vigorous enforcement of antitrust laws.
PUBLIC POWER	Develop regional giant power systems, reverse Ike's "no new starts" policy.	Continue public-private "teamwork" approach to power development.
PUBLIC TRANSIT	Federal aid for bus and rail mass transit.	No specific mention.
RIVERS & HARBORS	Improvement by new starts and adequate maintenance.	Promises "development of new water resources projects."
DEPRESSED AREAS	Promises to pass again bills, vetoed by Eisenhower, to provide low-interest loans for public facilities and to private industry.	No specific mention.
WATER POLLUTION	More grants for construction of treatment works like bill Ike vetoed.	Generally stands on present program.
TAXES	Promises "long-delayed reductions" in excise, corporation, individual income taxes; close loopholes in dividends and oil depletion. But Kennedy hints tax hikes if economic growth does not produce needed revenues.	Promises tax reform to foster investment, including realistic incentive depreciation. No talk of tax cut.
JOB DISCRIMINATION	Pledges only "action" to eliminate prejudice in jobs. No reference to Jim Crow unions.	Establish a "commission on equal job opportunity" (not FEPC) to bolster Nixon's committee on government contracts. For legislation to end Jim Crow in unions.
ON-SITE PICKETING	Kennedy's stand same as Nixon's. Kennedy introduced bill to permit construction site picketing, and will push it in August session.	Favors easing of restrictions to permit building trades picketing of construction sites.
RIGHT TO WORK	Platform promises to seek federal ban on state right-to-work laws.	Against Federal law to bar. Favors retaining Taft-Hartley authorization of state right-to-work laws.
DAVIS BACON	Platform only promises to "strengthen and modernize" law—no specifics. Refers to such things as including fringe benefit costs in setting hourly wage rates.	"Improvement" of eight-hour laws on overtime in federal construction.

Contract award is coming next month for . . .

$6-Million Radio Telescope

The first construction contract for the Air Force's $6-million radio telescope in Arecibo, Puerto Rico, will be awarded next month.

The government's newest telescope will have a 1,000-ft-dia dish—a size made possible by the structure's unusual design.

• Unlike most existing radio telescopes, the Puerto Rican project will have no moving frame for the reflector; the pickup-transmission feed above the center of the dish will do all the moving. The builders of the telescope therefore will not face the structural difficulties normally encountered in supporting large movable dishes within rigid deflection tolerances.

• The reflector will have no supporting structure. Instead, a large natural sinkhole acts as a bowl for the reflector to sit in, thereby providing economical construction.

The reflector will consist of a spherical surface of 870-ft radius. Aluminum members carried by a cable network support the reflector mesh. The network's frequent supports and tie-downs maintain the required shape tolerance of ±0.1 ft from the true sphere.

Radio signals will be picked up by the feed structure, which consists of a fixed triangular support platform and a bow-and-arrow type feed system. These units are connected by a circular track for full-circle horizontal movement. The feed moves on a surface 435 ft in radius and extending to a maximum angle of 20 deg each side of the zenith.

The entire feed structure will be suspended from three sets of prestressed cables, saddled on top of concrete towers and anchored to a concrete base on rock.

The cables make possible the maximum deflection tolerance of ±3 in. for the suspended structure under temperature, wind and structural loads.

If the telescope proves successful, it may lead the way to practical development of radio telescope reflectors many times its size. (The largest dish to date is a 600-ft-dia reflector under construction at Sugar Grove, W. Va.)

From the radio observatory, scientists hope to study the composition of space, the upper atmosphere and the solar system by radar methods, as well as to send and receive radio signals to and from deep within the universe. Completion of the project is scheduled for July, 1961.

The conception of the Arecibo Observatory project is the work of Prof. William E. Gordon, project officer of Cornell University, Ithaca, N. Y. The engineering design is a joint venture consisting of von Seb, Inc., Development Engineering Corp., Severud-Elstad-Krueger Associates, and Praeger-Kavanagh. Construction is under the direction of Cambridge Research Center (U. S. Air Force) with Cornell University, serving as the major contractor. Associated facilities at the site are being constructed by the U. S. Army Corps of Engineers.

Estimated cost for the reflector alone is $3.2 million.

Plenty o

The Department of Commerce has apportioned $2,893,750,000 in highway money to the states for fiscal 1962, which begins next July 1. That includes $2.2 billion for the Interstate system and $693.8 million for primary, secondary and urban (ABC) roads.

The figures represent an increase in Interstate funds over the $1.8 billion allocated in this fiscal year, but a more apparent than real decrease in ABC aid, which is $925 million this year. The Department of Commerce points out, however, that it is authorized to spend $925 million for the ABC program in fiscal '62, the same as this fiscal year; it is withholding 25% of the authorization pending final 1960 census figures.

ABC apportionments are based in part on population. They are provided to the state on a 50-50 matching basis.

States are required to match only 10% of the funds for Interstate routes (less in western public land states). The $2.2-billion apportionment for fiscal '62 is the full amount authorized by the Federal Aid Highway Act of 1958.

Announcement now of apportionments for the next fiscal year gives states nearly a year for planning and programming (see editorial p. 100).

Interstate funds are apportioned on the basis of the estimated cost in each state. Present apportionments are based on an estimate made in January 1958, which indicated the entire system would cost about $40 billion. A new estimate, now in preparation, will be presented to Congress in January.

Dan Teters Dies; Served M-K Overseas Many Years

The colorful career of N. D. Teters, vice president of Morrison-Knudsen Co., Inc., ended with his death last week at the age of 59.

During World War II, he was civilian boss of hundreds of U. S. construction workers captured by the Japanese on Wake Island. He spent four years in prisoner-of-war camps.

Mr. Teters worked overseas most of his 22 years with the Boise, Idaho, construction company. He spent eight years in French Morocco building NATO air bases and supervised other big jobs in Iraq, Hawaii and the Philippines. He went to China in 1946 as a member of an engineering planning mission shortly before the Red victory. His last M-K post was vice president in charge of special projects.

He began his heavy construction career during World War I, building airfields for the Army Signal Corps aviation section.

Planning Time for '62 Roadbuilding

(25% of ABC withheld)

STATE	PRIMARY	SECONDARY	URBAN	INTERSTATE	STATE TOTAL
Alabama	$5,143,098	$4,555,551	$2,214,291	$42,706,125	$54,619,065
Alaska	16,520,166	10,983,483	20,323	.....	27,523,972
Arizona	4,432,928	2,859,925	644,432	29,582,438	37,519,723
Arkansas	4,387,308	3,310,420	956,481	21,504,656	30,158,865
California	12,833,872	6,877,071	14,829,076	220,070,812	254,610,831
Colorado	4,763,833	3,543,907	1,380,538	16,783,594	26,471,872
Connecticut	1,595,421	870,175	3,331,802	26,420,625	32,218,023
Delaware	1,389,328	922,646	354,198	7,623,000	10,289,172
Florida	4,227,645	3,120,489	3,090,532	56,111,344	66,550,010
Georgia	6.344,661	5,263,093	2,446,856	52,256,531	66,311,141
Hawaii	1,261,373	1,030,219	580,761	12,375,000	15,247,353
Idaho	3,367,101	2,129,393	332,384	14,942,813	20,771,691
Illinois	9,774,032	6,087,533	11,949,364	111,053,250	138,864,179
Indiana	5,648,925	4,794,819	4,131,814	62,456,625	77,032,183
Iowa	6,302,134	4,833,585	1,974,740	20,551,781	33,662,240
Kansas	6,358,544	4,471,050	1,528,252	19,382,344	31,740,190
Kentucky	4,919,086	3,909,308	1,793,526	38,071,688	48,693,608
Louisiana	4,206,721	2,716,899	2,531,674	57,194,156	66,649,450
Maine	1,973,815	1,652,528	721,807	11,131,313	15,479,463
Maryland	2,039,627	1,657,910	2,931,142	48,791,531	55,420,210
Massachusetts	3,211,244	1,511,181	6,951,012	60,312,656	71,986,093
Michigan	9,234,760	5,500,919	8,038,186	85,109,062	107,882,927
Minnesota	7,808,474	5,333,100	2,812,332	40,822,031	56,775,937
Mississippi	5,084,798	4,315,766	956,196	23,778,563	34,135,323
Missouri	7,721,692	5,409,437	4,253,316	61,785,281	79,169,726
Montana	5,193,975	3,573,108	406,681	24,623,156	33,796,920
Nebraska	5,126,695	3,795,095	1,012,935	13,361,906	23,296,631
Nevada	3,397,528	2,346,127	131,532	11,326,219	17,201,406
New Hampshire	1,545,328	1,030,219	511,469	11,910,938	14,997,954
New Jersey	3,321,649	1,466,901	7,305,508	70,079,625	82,173,683
New Mexico	4,742,161	3,012,634	566,799	25,944,188	34,265,782
New York	12,105,074	5,025,417	22,132,625	107,263,406	146,526,522
North Carolina	6,205,411	6,201,315	2,202,946	11,737,688	26,347,360
North Dakota	3,656,690	2,441,089	292,034	9,593,719	15,983,523
Ohio	9,546,073	5,202,464	9,694,275	141,068,812	165,511,624
Oklahoma	5,813,421	4,249,110	1,638,263	19,685,531	31,386,325
Oregon	4,566,870	3,200,805	1,305,214	37,530,281	46,603,170
Pennsylvania	10,019,431	6,493,523	13,013,319	88,314,187	117,840,460
Rhode Island	1,321,338	915,899	1,234,624	10,091,813	13,563,674
South Carolina	4,051,088	3,383,208	1,188,037	17,844,750	26,467,083
South Dakota	3,930,431	3,068,975	335,448	9,182,250	16,517,104
Tennessee	5,555,782	4,470,002	2,452,009	64,232,437	76,710,230
Texas	16,175,122	11,578,891	7,977,182	97,842,937	133,574,132
Utah	3,607,916	2,386,125	731,811	20,248,594	26,974,446
Vermont	1,334,034	985,613	268,914	20,421,844	23,010,405
Virginia	5,218,997	3,765,644	2,693,178	91,757,531	103,435,350
Washington	4,302,231	3,060,204	2,602,709	39,219,469	49,184,613
West Virginia	3,090,106	2,302,651	1,082,941	27,135,281	33,610,979
Wisconsin	6,360,508	4,353,092	3,171,211	22,804,031	36,688,842
Wyoming	3,300,180	2,492,812	187,786	22,500,844	28,481,622
District of Columbia	1,306,993	902,617	1,492,036	21,461,344	25,162,990
Puerto Rico	1,471,658	1,702,176	1,208,379	.....	4,382,213
Total	**$312,187,500**	**$208,125,000**	**$173,437,500**	**$2,200,000,000**	**$2,893,750,000**

$6-Million Is Low Bid For Portand's Biggest Hotel

A bid of $6 million for construction of Portland's tallest building made Westfall Construction Co., Portland, Ore., low bidder. Contract award will follow a 30-day bid-study period.

The 22-story tower features an exposed concrete frame with a special bush-hammered finish. Aluminum mullions will punctuate the glass walls.

The engineers designed shear walls to resist wind and seismic forces. The concrete frame is also designed to resist a portion of the lateral load—a safety measure required in Portland's building code.

Architects are Skidmore, Owings and Merrill; structural engineers are Moffatt, Nichol and Taylor. Both firms are from Portland.

Ralph J. Brody Resigns Key California Water Post

Ralph J. Brody, an attorney and expert on water law, will resign as deputy director of California's Department of Water Resources. He also is special counsel to Gov. Edmund G. Brown on water problems. As such he pushed through the legislature the $1.75-billion bond referendum that voters will consider in November.

Mr. Brody had hoped to stay on the job until after the election. But an attractive employment offer may cause him to leave sooner.

Mr. Brody replaced M. J. Shelton, an engineer, as deputy to Water Resources Director Harvey Banks shortly after Governor Brown took office early in 1959.

Stresses Set for A36 Steel

The American Institute of Steel Construction has issued a specification addendum establishing design stresses for the new ASTM-A36 steel (ENR May 12, p. 24). It supplements the AISC specification for the "Design, Fabrication, and Erection of Structural Steel for Buildings."

Also, U. S. Steel Corp. has set A36 steel prices at only $1 per ton over the price of A7. This small premium price means that designs in A36 steel will definitely cost less than those in A7.

Basically, the allowable stresses increase in proportion to the 10% increase in the minimum yield point stress of A36 over A7 steel. Axial tension and extreme fiber bending stresses rise to 22,000 psi; web shearing to 14,300 psi.

An exception to the straight 10% increase is the A36 column formula:

$F_a = 19{,}000 - 0.625\ L^2/r^2$,

for L/r ratios from 0 to 120.

This formula yields stress increases ranging from 12% for $L/r = 0$, and 0 for $L/r = 120$.

The A7 formula for L/r ratios over 120 will be retained for A36.

Ultimate tensile strength of A36 steel may vary from 60,000 to 80,000 psi—a greater range than the 60,000 to 75,000 psi allowed for A7.

Minimum yield point for A36 steel is 36,000 psi, compared with 33,000 psi for A7.

Unlike A7 steel, which is uncontrolled in its carbon, manganese and silicon content, A36 is similar to A373 (Structural Steel for Welding) in chemical requirements. In bars, shapes, and plates up to ¾ in. thick, A36 is equal to A373 in weldability.

The AISC plans to issue a complete revision of the structural steel specification within the next 12 months. Among other additions, it will include provision for other high-strength steels as well as for A36.

Copies of the "Supplementary Provisions for the Use of ASTM-A36 Steel" are available free from the American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y.

Around the World . . .

• **Jersey housing**—The Federal Housing Administration has approved mortgage insurance on a $5.5-million loan for first-stage construction of Jersey City's $12-million Gregory Gardens Housing Project. The two 21-story apartment towers, designed by architect John Hans Graham of Washington, D. C., are a key to Jersey City's 10-year, $70-million urban renewal program.

• **Houston hotel**—Contractors now are bidding for construction of the $15-million Sheraton-Lincoln Hotel in downtown Houston. The 28-story structure will feature 500 hotel rooms plus 114,000 sq ft of office space. Completion: early 1962.

• **Roadblock cleared**—A county circuit court upheld the constitutionality of a Portland, Ore., law establishing the Portland Development Commission. The decision clears the way for a start on a $9-million urban renewal project.

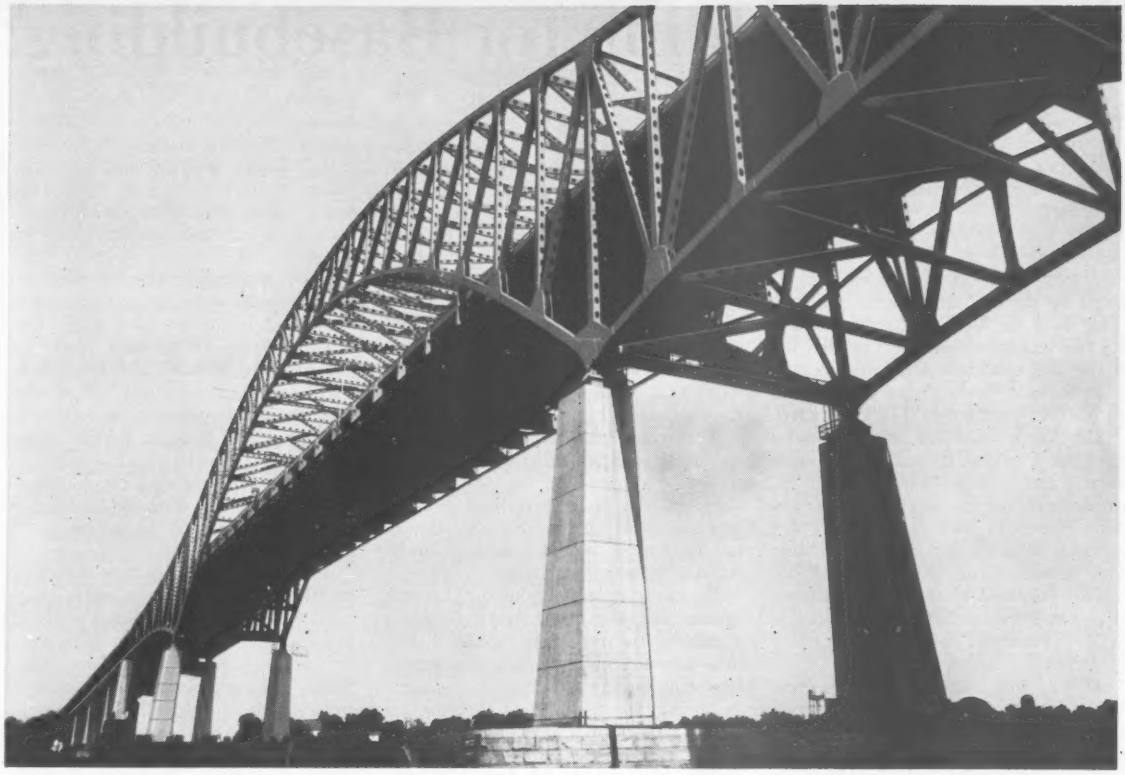
• **Engineer expands**—Cornell, Howland, Hayes & Merryfield, Corvallis, Ore., consulting engineers, have opened an office in Seattle. Resident partner at the new office is Holly A. Cornell, one of the founding partners. James W. Poirot will be Mr. Cornell's assistant.

• **Name change**—The Heavy Construction Division of Henry J. Kaiser Co., Oakland, Calif., is renamed Kaiser Engineers International, Division of Henry J. Kaiser Co. Edgar F. Kaiser, president of the parent company, says the new name will more adequately define the scope of the division. John Hallett is the new general manager.

• **Air terminal for London**—Work has begun on London's new $10-million terminal for British European Airways. On its completion, scheduled for 1963, the terminal will be capable of handling seven million passengers annually.

• **Beverly Hills offices**—Construction has started on what will be the largest office building in Beverly Hills, California—a $13.5-million bank with 600,000 sq ft in eight floors plus a mezzanine, penthouse and five sub-levels.

• **Urban chaos: East and West**—The Soviet Union has its own version of the urban-suburban problem. A Soviet architect summarizes it thus: "First we had to rebuild the dilapidated suburbs to match the well-built central districts of our cities. Now we have to raise the old central districts to the level of the suburbs."



X-L-O Primer protects structural steel against corrosion two important ways

Shopcoating structural steel shapes with today's advanced X-L-O Primer:

1. Protects them from corrosion in transit, during erection, and for the entire life of the structure.

2. Provides an excellent foundation for final coats that helps improve their resistance to weather wear.

• **X-L-O also eliminates costly cleaning** before priming. And its superior wetting properties insure you of uniform coverage even over surface irregularities.

• **X-L-O's positive and thorough drying** lets you ship fabricated parts to job sites within 24 hours after priming, regardless of the season.

• **Made with high-quality linseed oil,** X-L-O is available in combination of red lead and iron oxide, or 100% red lead.

• **Why not let us *prove* to you** that X-L-O can give *your* steel shapes better protection, longer life? Just write, wire or phone Pittsburgh Plate Glass Company, Industrial Finishes, 1 Gateway Center, Pittsburgh 22, Pa.

PPG®

PITTSBURGH INDUSTRIAL FINISHES

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

No More Bidding for Basebuilding?

The Army Corps of Engineers is considering a switch from missile base construction contract awards through scaled bids solicited under formal advertising to a negotiated contracting procedure.

Maj. Gen. Walter K. Wilson, Jr., the Corps' deputy chief for construction, said last week the change might speed up work on the missile projects.

He said the Corps is also considering the establishment of a "limited list of the best qualified contractors known by experience" with whom negotiations on ICBM projects would be conducted.

The Corps has been under pressure from the Air Force to make these policy shifts. The changes would bring Engineer construction contracting procedures more in line with Air Force methods of weapon system contracting with manufacturing and research firms.

The proposed change was disclosed at an unprecedented three-hour meeting in the Pentagon called by Secretary of Defense Thomas S. Gates.

All told, 30 construction contractors and architect-engineer firms were represented—mostly by their presidents—at the Pentagon meeting.

Mr. Gates called the meeting to dramatize the urgency of speeding up lagging missile base construction. Also at the meeting were presidents or vice-presidents of 19 major missile systems and component makers, along with the Army, Air Force, and Department of Defense brass.

Gen. Curtis E. LeMay, vice chief of the staff of the Air Force, later told ENR: "We want to select our contractors for construction on a selective basis, as we do in weapons system manufacturing. We must be interested in the total structure of the company, its total resources, the amount of resources it plans to earmark for individual projects."

The general said that negotiated procurement with construction contractors would be a more effective method than the currently used advertised bidding procedure in which contracts are let to the lowest bidder qualified under Army Engineer regulations.

By implication, General LeMay was saying that the usual Army Engineer standards for certifying qualified bidders are not high enough for missile base construction.

Among those attending the meeting was H. J. Feldman, president of Malan Construction Corp. of New York. The prime construction contractor at the Offutt Air Force Base Atlas site near Omaha, Malan's performance on the contract has been a subject of controversy. The company subcontracted out at least 90% of the work at Offutt.

The Corps of Engineers has a new policy that will require all military construction contractors to handle at least 15% of the project work with its own staff.

Mr. Gates asked the contractors at the conference to submit in writing to him their answers to a whole range of questions on subjects that have arisen during missile base construction —such as the adequacy of contract provisions, pre-qualification tests, labor problems, and how to handle change orders in construction.

General Wilson said the Corps did not envision use of cost-plus-fixed fee contracts similar to provisions in Air Force production.

The general met privately with many of the construction industry representatives after the meeting with Mr. Gates. His purpose was to discuss ways of speeding payment of government funds to construction contractors hit by change orders. The contractors complained at the meeting of having to assume the initial change order costs themselves.

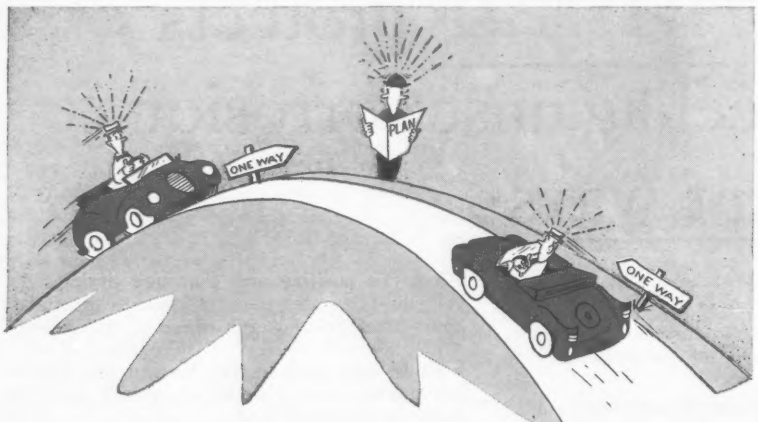
General Wilson stressed the importance of the recent centralization of Engineer management over ICBM base construction under the command of Brig. Gen. Alvin C. Welling, former District of Columbia engineer commissioner (ENR July 28, p. 21).

The industry representatives told Mr. Gates he should hold the same sort of meeting with leaders of labor unions participating in the program. AFL-CIO President George Meany was invited to the meeting, but did not attend.

Brig. Gen. William E. Leonard, deputy commander of the Air Force's Ballistic Missile Division, said the delays in activating the first four Atlas squadrons stemmed from "contractor inexperience," jurisdictional labor disputes, shortage of required skills, and late deliveries of equipment.

He pointed to the "over-all difficulty of accomplishing wartime tasks under peacetime conditions and authority." He also cited the problems of having so many different contractors working simultaneously on single projects.

Industry representatives proposed that some companies consider the centralization of management responsibilities for missile work just as the Air Force and Army Engineers have done. They also suggested that missile manufacturers and construction contractors "mingle" as a means of understanding each other's problems.



Back to the Old Drawing Board

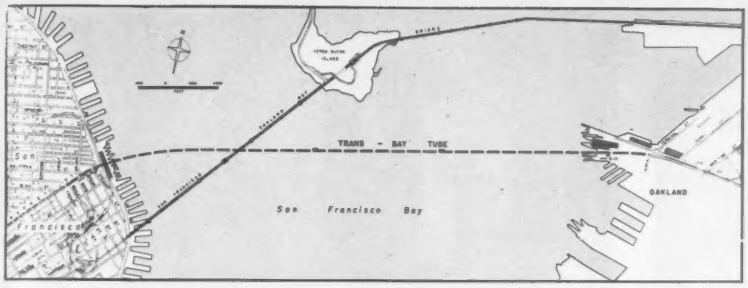
Lake County, Ohio, was left with what its engineer called "potentially the most dangerous intersection in the country" when the dust settled after construction of an interchange between state routes 44 and 84 near Painesville.

Morley Road, a two-way county highway, was found to tie in with a southbound ramp carrying traffic from Route 84 to 44. Cars going northeast on Morley Road would bang head-on into one-way traffic coming south.

"If they took that barricade down there would be a dozen wrecks within half an hour," said Richard M. Plummer, Lake County engineer.

"I guess in the rush to get 44 under construction we did overlook some of the finer points of traffic safety," said John P. Zassick, a traffic engineer for the Ohio Department of Highway's Division 12.

"It looked a bit different on the plans."



For tunnel under San Francisco Bay . . .

Precast Concrete Clad in Steel

Officials of the San Francisco Bay Area Rapid Transit District last week revealed detailed plans for the proposed $127-million underwater crossing of San Francisco Bay.

The tube will carry two transit lines. It's a key element in a planned 125-mile rail system to serve five counties surrounding the bay.

Details of the crossing were contained in a report prepared by consultants Parsons, Brinckerhoff-Tudor-Bechtel, a joint venture composed of Parsons, Brinckerhoff, Quade & Douglas, New York City; Tudor Engineering Co., and Bechtel Corp., both of San Francisco.

The 18,000-ft-long main portion of the tube will be made of steel-clad precast concrete tunnel sections. The sections will be cast in the dry, floated into place and sunk into position in a predredged trench in the mud, clay and sand formations underlying the bay. The work will require 62 precast sections, most of which will be 300 ft long. Fifty sections will be 35 ft in diameter, nine will be 36 ft, and three will be special sections.

Maximum depth of the bottom of the tube will be 120 ft below mean low water. Maximum grade will be 3%.

The crossing will start from the old Southern Pacific ferry mole on the Oakland side. It will pass under the San Francisco-Oakland Bay Bridge. In San Francisco, the tunnel will pass beneath the ferry building and the Embarcadero Freeway, and extend up Market St.

On the Oakland side, a 1,900-ft extension will be built by cut-and-cover and open cut methods to bring the rails to the surface.

On the San Francisco side, there will be a 1,500-ft extension constructed by the twin shield method. This will carry the route to a junction with the projected Market St. Subway. The designers say the twin shield method may be slightly more expensive than cut-and-cover, but has the advantage of minimum disturbance to existing waterfront structures.

The engineering report estimates costs at $88 million for the subaqueous tube, $26 million for the San Francisco approach and $13 million for the Oakland approach.

A major consideration in design has been earthquake safety. Engineers installed seismological instruments in the bay bottom early this year (ENR Jan. 14, p. 26). Prof. George W. Housner of California Institute of Technology said the tube could be designed to withstand safely an earthquake intensity of 8.6 on the Richter Scale (the 1906 San Francisco earthquake was 8.25).

Further studies and additional underwater observations will be made, but are not expected to have a significant effect on design of the tube. However, they are important in checking the design.

Plan is to pay part of the cost of the tube from tolls on the San Francisco-Oakland Bay Bridge. But financing of the entire rapid transit proposal has been delayed (ENR June 16, p. 25).

Channel Tunnel Backers Revise Financing Plans

The Channel Tunnel Study Group, backers of a tunnel under the English Channel between England and France, has revised its financial arrangements in an attempt to win over cautious British officials.

As originally outlined early this year, the group proposed that the British and French governments be responsible for costs running over the estimated $300 million.

This would have made it easier to raise private capital at low interest rates.

The British government didn't like this, so the French-British-American group is now ready to let the equity holders run the excess cost risk.

As another lure for approval, the group offers to finance construction of terminals at either end of the tunnel and lease them to Great Britain and France.

The shift of risk-taking to private investors means the returns on investments will have to be more attractive.

Engineers to Spare

Russia's engineer schools rated high by EJC group

A group of engineers returning from Russia last week advised Americans not to sell short the quality of technical education in the Soviet Union today.

A six-man Engineers Joint Council delegation reported that engineering education given in the 13 institutes they visited in the USSR is of high quality. And some 108,000 engineers are graduated annually in Russia, as compared to about 35,000 here.

Russia now has so many engineers at its disposal that it can assign some new graduates to work as foremen, or even as skilled workmen, says Walter E. Lobo, a consulting chemical engineer.

Only 20% of the high school graduates who are accepted for engineering training are allowed to begin study immediately. The other 80% must first spend two years in practical work in industry. For all students the five and one-half year course includes a year and one-half of practical work under the direction of faculty members. This extensive practical work permits a greater amount of theoretical work in the engineering program.

The delegation reports that the theoretical and mathematical content of Russian engineering training is above that generally given in bachelor of science programs in the U. S.

The delegates report that the drop-out rate among Russian engineering students is low—about 5% as compared with a U.S. rate as high as 50%.

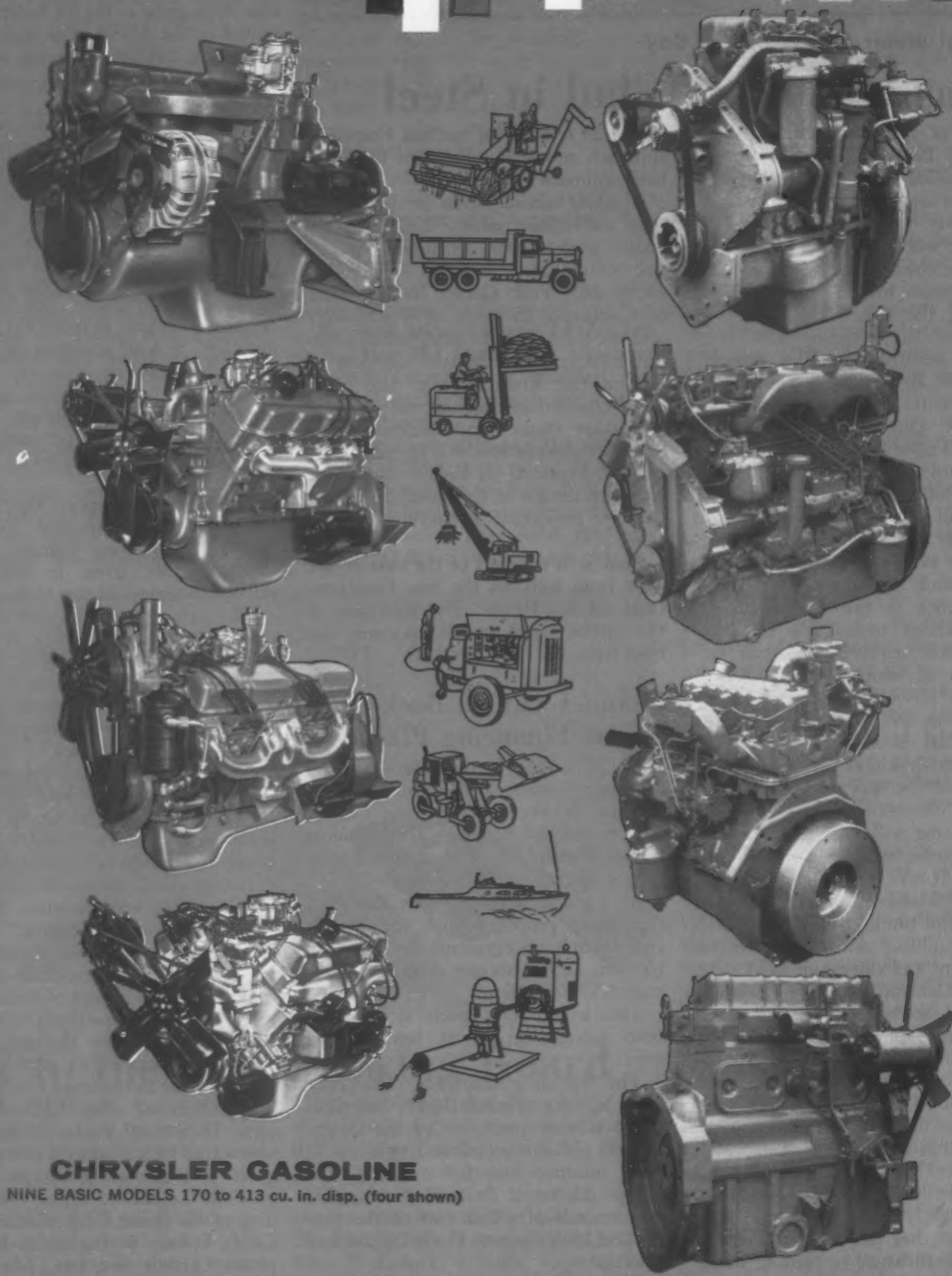
"Soviet citizens approach technical educaton with great seriousness of purpose and real dedication," according to the delegates' preliminary report.

Effort pays off in school—75 to 80% of students get grants on the basis of academic performance—and in later life, when many engineer managers are admitted to the Communist Party.

"We must become more serious in our view toward education," said one of the delegates. "The (Russian) drive to learn, with appreciation by all of the importance and impact of technology in today's world is something to which we can well give serious thought. We are in a highly competitive world situation and we want to maintain our position."

Members of the EJC delegation were: H. Russell Beatty of the Wentworth Institute, Boston; Carlton S. Dargusch of Engineering Manpower Commission, Columbus, Ohio; Oleg Hoeffding of the Rand Corp., Santa Monica, Calif.; Sydney B. Ingram of Bell Telephone Laboratories, Inc., Murray Hill, N. J.; Robert M. Mahoney, of Union Carbide Corp., New York; and Mr. Lobo of New York.

all new...



CHRYSLER GASOLINE
NINE BASIC MODELS 170 to 413 cu. in. disp. (four shown)

PERKINS DIESEL
SIX BASIC MODELS 20 to 130 Horsepower (four shown)

GASOLINE AND DIESEL ENGINES FROM . . .

CHRYSLER

New line up of Chrysler M & I engines . . . with a new running mate: Perkins liquid cooled diesels. Both highly compatible, highly competitive power plants now available in the United States and Canada from a single source: Chrysler M & I. Parts and service for both—marine or industrial, gasoline or diesel—available within 8 hours from Chrysler's nationwide Engine Center network.

What's new? The power, the package, the price! New Chrysler M & I line includes nine basic models—170 to 413 cu. inch displacement, two OHV sixes, seven OHV V-8's. Most are available in two versions—a heavy duty standard and a heavy duty premium—to give your application the exact power it needs. All are highly competitive engines that give you more heavy duty horsepower per dollar.

Perkins diesels are highly compatible with Chrysler's horsepower range—and just as competitive. Six basic models—three, four and six cylinders—20 to 130 horsepower. All high speed, liquid cooled engines with a proven record of performance in over 500 applications —including Chrysler built trucks and taxis.

If your power requirements are within the 170 to 413 cu. inch range, you'll want to take a good long look at the new power package from Chrysler M & I. *Send Coupon for Details.*

CHRYSLER

MARINE AND INDUSTRIAL ENGINE DIVISION

CHRYSLER CORPORATION
DETROIT 31, MICHIGAN

Send for detailed information on new gasoline and diesel engines from Chrysler M & I

DEPT. ENR-8. Chrysler Marine & Engine Division
P. O. Box 1836, Detroit 31, Michigan

Please send me the following literature: ☐ Perkins Diesel Full Line Specification Folders ☐ Chrysler M & I Engine Specification Folder

I am interested in an engine of about _____ (Horsepower) for _____ (Application)

NAME: _____

TITLE OR DEPT. _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

New plant produces more asphalt with . . .

one man and semi-automatic controls . . .

Improved Design in an Asphal

Changes during the last 15 years in the structural design and in the methods of controlling hot-mix asphalt plants have resulted in tremendous increases in plant efficiency, economy, output and ease of operation.

Bulky, dusty, manually controlled plants with four- or five-man crews are being replaced or augmented by clean, compact units—generally semi-automatic and controlled by but a single operator.

The contrast between new and old batch-mix plants is strikingly apparent at a quarry owned and operated by the York Stone and Supply Co. at York, Pa. Here, side by side, stand two operating batch mix units manufactured 14 years apart by the Iroquois Division of Posey Iron Works. The plants are about equal in size and, on the basis of adjusted dollar value, their initial cost was about the same. Both plants work from a common asphalt supply system. Their cold material bins are filled in the same way. The storing, drying, screening and mixing cycles are almost identical.

Yet Plant No. 1, erected in 1945, produces only 70 to 75 tons per hour, while Plant No. 2, erected last year, turns out 120 to 125 tons per hour.

The superiority of the newer plant is not merely a matter of plant age. Both the owner and the manufacturer credit it to air panel controls and improved drier design.

The plants are erected at the base of a high retaining wall. Cold material bins, set against and flush with the top of the wall, are filled by trucks, which back up to them from the upper level. A wide concrete apron at the top of the wall provides storage space for surplus materials, which can be pushed into the bins as needed by bulldozers or front end loaders. Beside the apron, three 10,000-gal and two 5,000-gal tanks hold asphalt. Three automatic pumps used singly or in tandem, move the material to the asphalt weigh buckets of both plants.

The processing cycles of the old plant are standard. Aggregate is carried on a belt conveyor from the cold material bins to the cold elevator, which lifts it to the drier. It is then taken by the hot material elevator to vibrating type screens, where it is separated into four fractions and dropped into hot material bins, with the over-sized material going into a separate hopper. From the hot material bins the aggregate goes to an aggregate weigh box to be dumped into the mixer along with hot asphalt coming from a separate asphalt weigh bucket. The materials then go through a prescribed mixing cycle before the mix is dumped into trucks.

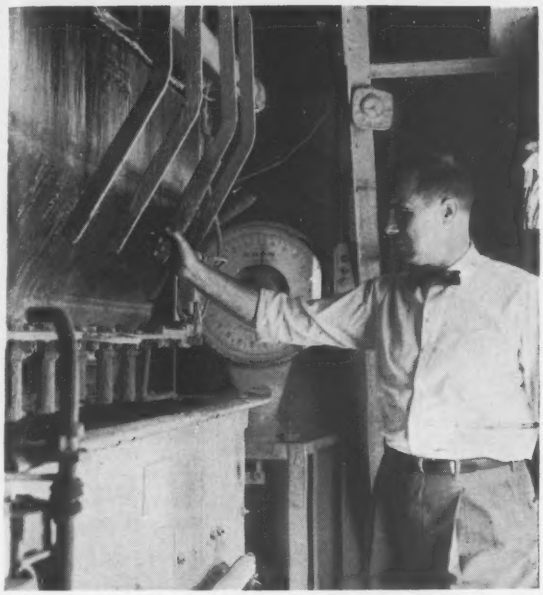
The processing cycle of Plant No. 2 varies in but one respect—there is no cold material elevator. The drier is set at ground level and aggregates flow into it directly from the belt conveyor.

While the processing cycles of the two plants are basically the same, control of these cycles is not.

In Plant No. 1 all operations are manually controlled. One man stands at the cold material bins to regulate the flow of aggregate to the belt conveyor. Another man watches the drier and regulates its temperature by turning valves. On the mixing platform, a third man pulls on levers at the hot material bins to fill and empty the aggregate and asphalt weigh buckets. A fourth man travels around the plant. He keeps track of the amount of material in various bins, checks material temperatures at various points, and, in general, helps coordinate activities.

The operation of Plant No. 2 is a different story. Beneath the cold material bins are mounted remote control feeders that will put aggregate onto the conveyor belt in volumes ranging from a few spoonfuls to 100 tons per hour. At the drier there is a potentiometer which, once set, automatically controls drier temperature and continuously records it on a circular graph. Electric bin level measuring devices on all bins keep the operator posted on material quantities. Thermocouples carry temperature readings of various stations back to the control room.

The nerve center of the entire operation is a patented console type panel centrally located in a bright, dust-free room on the second deck of the plant. This panel gives the operator complete



than do four men at manual controls . . .

in this older plant of comparable size.

Plant Boosts Production by 70%

control over all mixing operations. Buttons activate air cylinders, which open and close valves and bin gates. Red and green lights flash time cycle and quantity information to the operator. A selector switch mounted on the right side of the panel permits the operator to check aggregate and oil temperatures through various stages of production. A telephone mounted on the left side of the panel makes it unnecessary for the operator to leave his post to make or receive calls. Facing the operator from either side of the panel are large-face scale dials. These dials carry indicator clips, which can be preset to reduce the possibility of weighing error.

On a distributor panel behind the operator are mounted the dial controls for the feeders under the cold material bins. A single setting of these dials insures proper proportioning and blending of aggregates for delivery to the hot material bins, for any specified mix.

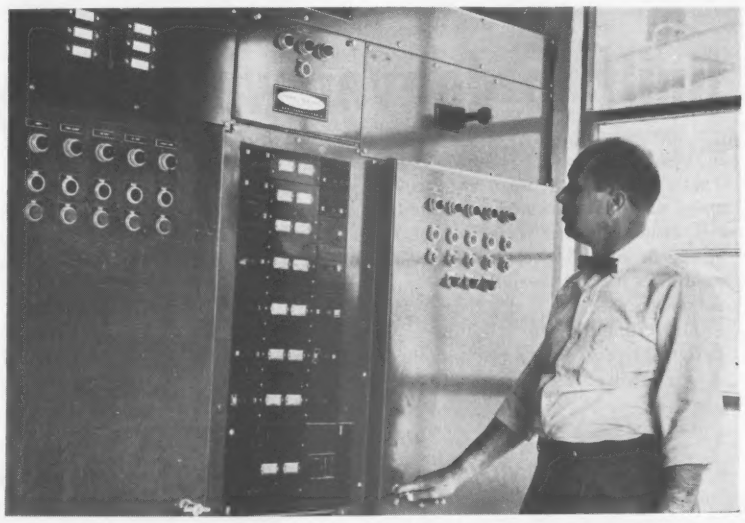
A built-in timer can be used to control both dry and wet mix cycles. It can be set in increments of one second for from zero seconds to five minutes. When in use, this timer makes it impossible for the operator to put asphalt into the pugmill until the aggregate has been dry-mixed for the required time. It also prevents the wet mix from being dropped into trucks until it has been mixed for the prescribed period.

One of the most important design changes in Plant No. 2 is in the drier. The older model drier has a series of straight-through flights that spill the aggregate in such a way that it curtains only two-thirds of the drum cross section. This means that more than one-third of the hot gasses do relatively little heating of aggregate.

In the newer drum the flights are short and staggered. The flight arrangement is such that falling aggregate curtains the entire drum. Since all the gasses must pass through the material, heat transfer is greater, stack temperatures are lower and the heating operation is more efficient.

According to the owner, the drier will handle about 30% more material on a given quantity of fuel than the older drier will—and will do it in the same time.

The net result of the improved design and control procedures is better asphalt mix at a greater rate of production and a lower cost.



Conventional power distribution panel has circuit breakers.

Quaker Thermoid

WATER SUCTION HOSE

Built to deliver whatever you can pump!

Sharp sand . . . silt . . . mud . . . small rocks . . . even ice. That's what puts the wear on hose. And with today's high-speed pumps the abrasive action multiplies.

Thermoid-Quaker Water Suction Hose is *triple-tough*. It's sturdy enough to meet the roughest, toughest, on-the-job wear. Yet it's light-weight and flexible, easy to carry, easy to set in place.

This triple-toughness is the result of three specially-designed layers. First, a black, rubber tube that resists mild acids and alkaline water . . . and abrasion. Second, a strong, durable carcass of heavy cotton fabric and heavy-gauge, copper-coated spiral steel wire that resists kinking and crushing. Third, a black, rubber cover that stands up under the toughest treatment . . . combats exterior abrasion . . . withstands exposure to sunlight and rough weather.

Ask your Thermoid Division Distributor about this triple-tough hose. It comes in sizes and constructions for every pumping requirement, in 50-foot maximum lengths. Or write *Thermoid Division, H. K. Porter Company, Inc., 200 Whitehead Road, Trenton 6, New Jersey.*

THERMOID DIVISION PORTER H.K. PORTER COMPANY, INC.

PORTER SERVES INDUSTRY with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

Caisson with features of bridge and ship is . . .

Floating Gate to Enclose Big Dry Dock

Fabrication of a floating caisson gate believed to be the biggest ever built will start shortly. It will enclose one of the world's largest dry docks—No. 6 dry dock at Puget Sound Naval Shipyard, Bremerton, Wash.

Gunderson Brothers Engineering Corp., Portland, Ore., received a $654,853 contract to build the gate. It will be 176 ft long, 20 ft wide and 63 ft high.

The dry dock is designed to service the largest naval vessels in existence (ENR Jan. 29, 1959, p. 38).

The criteria set up for the original design gave the gate two functions: To enclose the dock area tightly and prevent seepage from the sea; and to serve as a roadway and access to permit traffic from one side of the dock to the other.

The all-welded steel hull will have typical ship construction using bent plates for vertical frames and structural tees and angles for frame bracing. The horizontal girders will be composed of bent plates for chord members with tees as web framing. The operating deck and top deck will be built up plate girders.

For stability, 3.8 million lb of concrete ballast will be required. Two different densities of concrete are specified enabling the proper distribution of ballast weight to secure the draft and metacentric heights required.

A horizontal and vertical timber fendering system will protect the exterior of the caisson hull.

A bituminous surface will be applied to the top deck to take the wear of traffic and weather. The top deck will have flush hatches; curbing and railing; and chocks, cleats and capstans for mooring and making fast the floating gate.

Four vertical pumping units will dewater the caisson at the average rate of 8 in. per minute. The total amount of ballast water in all three compartments will be 675,000 gal. Flood valves are designed to admit water fast enough to lower the caisson gate at the rate of 12 in. per minute.

The caisson will be equipped with clinometers and gages to indicate inclination and draft changes. The clinometers will be of the spirit-level type mounted on gage boards to indicate heel and trim. Pneumatic-type gages will be used to indicate the caisson's draft and the inside ballast-water level.

A central control panel will be provided where these clinometers and gages will register the actual draft and inside depth of water above the keel line within a tolerance of ±1 in. when the measurements are being made in substantially quiet water or when the rate of change in draft is less than 2 ft per minute.

Air supply will be provided by fan units equipped with electrical heating elements to raise 100% outdoor air from 15 F initial temperature to 75 F final temperature. Electrical control for each supply fan will maintain minimum discharge temperatures and permit summer operation of the fans. Air exhaust units and air ducts will be furnished for effective ventilation throughout the vessel. Heating is maintained by electric unit heaters.

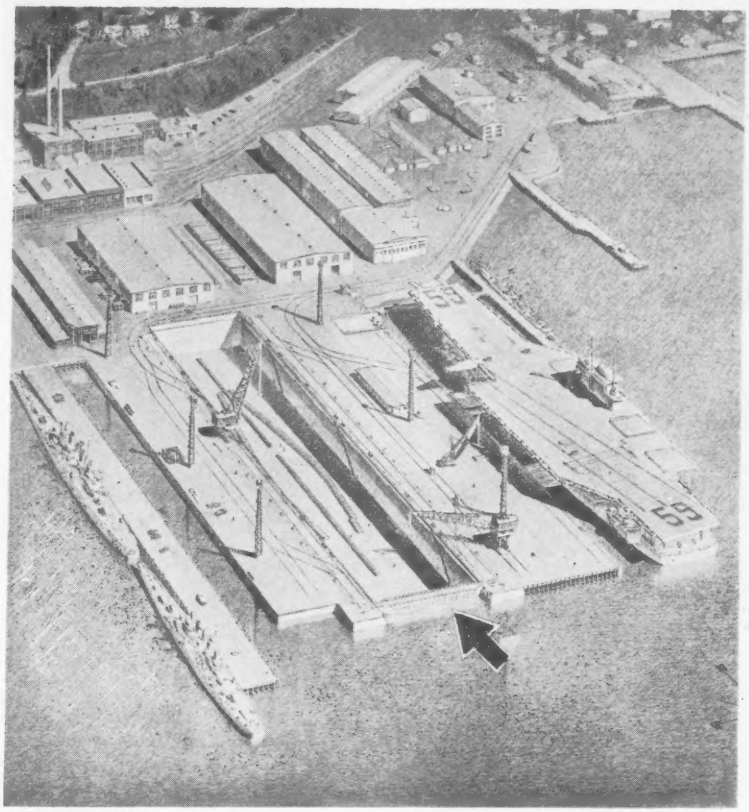
Power is distributed throughout the vessel to supply the transformers and the motors. Lighting fixtures are furnished for the top deck and interior compartments.

The sound powered telephone and bell signal system is designed to provide communications without the use of batteries or other outside source of electrical current. Provision is also made for shore connections.

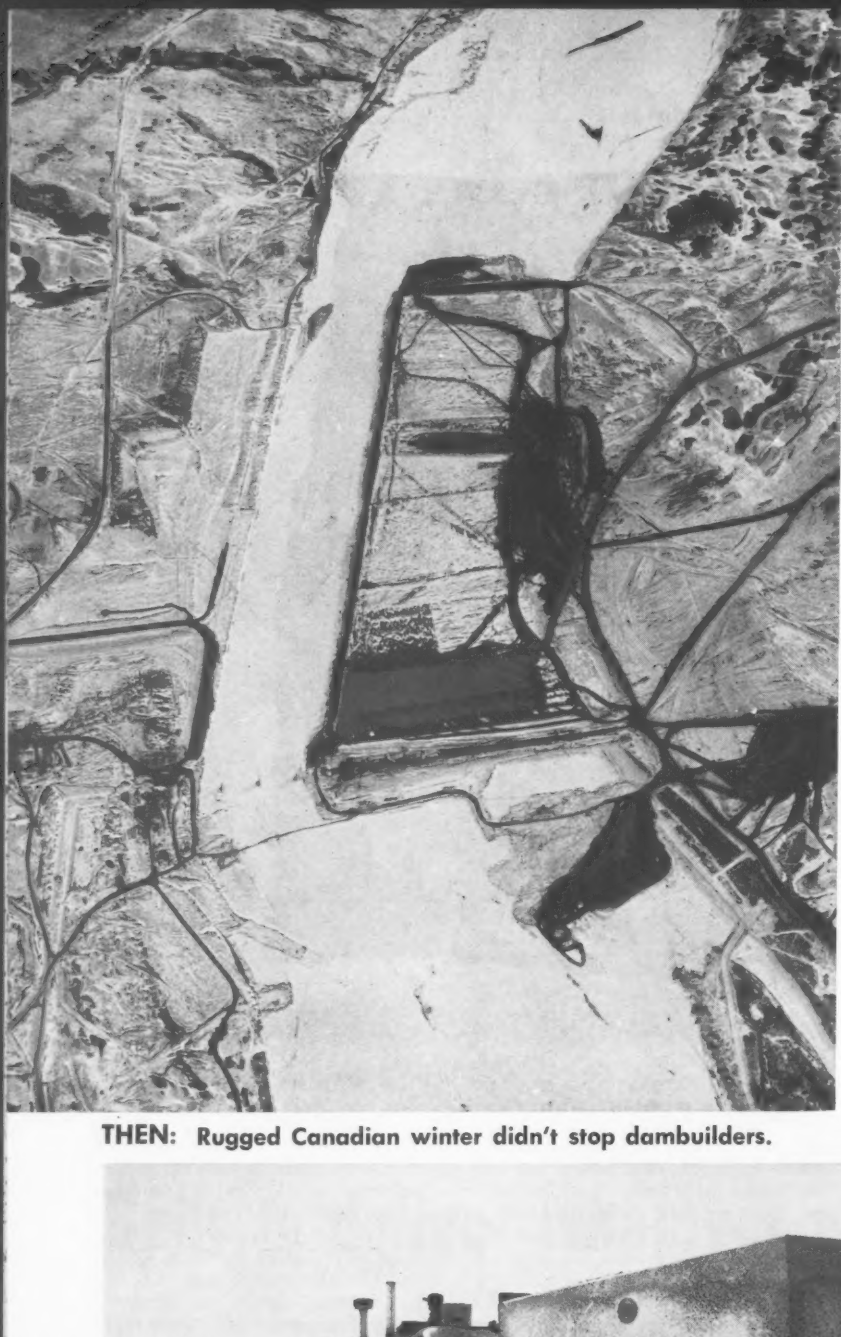
Capt. S. P. Zola, CEC USN, District Public Works Officer for the 13th Naval District, Seattle, is Officer in Charge of Construction for the Navy Bureau of Yards and Docks. Capt. Perry Boothe, CEC USN, is the Resident Officer-in-Charge of Construction at Bremerton.

The caisson gate was designed by Foster & Cafarelli, Consulting Engineers (now two separate firms), New York City, by contract with the Department of the Navy, Bureau of Yards and Docks under direction of Rear Admiral E. J. Peltier, CEC USN, Chief, Bureau of Yards and Docks.

Moran, Proctor, Mueser & Rutledge, New York City, and the firm of Carey and Kramer, Seattle, Wash., are architect-engineers for the dry dock.



CAISSON GATE (arrow in drawing) seals and bridges the Navy's No. 6 Dry Dock at Puget Sound Naval Shipyard. Floating gate itself will be a sizable vessel.



THEN: Rugged Canadian winter didn't stop dambuilders.

Canada's Bi

By G. A. MacKenzie

One of the largest construction projects ever undertaken in Canada and one of the world's greatest earthfill embankments (40 million cu yd), the South Saskatchewan River Dam rolled right through last winter, setting the stage for this summer's big push.

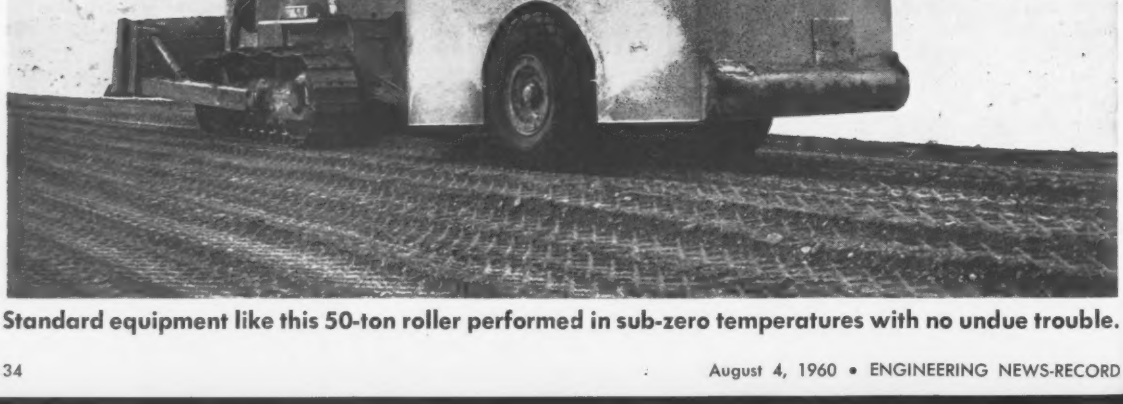
Work is underway this season on the upstream and central sections of the diversion tunnels; excavating the spillway basin; embankment construction in the Coteau Creek area adjacent to the spillway structure; and on approximately 25 miles of highway relocation.

The $192-million South Saskatchewan River project is primarily an irrigation project for the Prairie Farm Rehabilitation Administration. But it will also generate power and provide flood control benefits.

The main dam, a rolled earthfill, will be 210 ft high and three miles long. Five 20-ft-dia concrete-lined tunnels, 4,000 ft long, will divert the river when final closure is made for second stage construction. These will also serve ultimately as power tunnels. A gated concrete spillway, about a mile from the main dam, is connected to the reservoir by an 8,000-ft canal.

To control the flow of water from the main reservoir into the Qu'Appelle Val-

***Gordon A. MacKenzie** is the director of the Prairie Farm Rehabilitation Administration, the agency responsible for design and construction of the South Saskatchewan River project.*



Standard equipment like this 50-ton roller performed in sub-zero temperatures with no undue trouble.

Biggest Earthfill Goes Year 'Round

ley, an auxiliary earth dam will be built at the divide between the Qu'Appelle Valley and Aiktow Creek, which flows into the South Saskatchewan River. This control structure will be 90 ft high, 9,000 ft long and 700 ft wide at the base. The over-all project also includes nearly 500 miles of irrigation canal and a 150,000-kw power plant.

Although an early autumn snowfall hampered progress, placement of granular fill on the 40-million-cu-yd embankment proceeded right on schedule throughout the rugged Saskatchewan winter.

Cold weather operations proved several important points: Low temperatures have little effect on equipment steel provided proper operating care and preventive maintenance are exercised; frozen haul roads are easy on tires; and the efficiency of the operators is not particularly affected by the cold as long as they are carefully selected and properly treated.

Although the winter earthmoving work involved long hauls—four to six mile cycles—the hard, frozen haul roads actually improved efficiency. Also contributing to the success of the winter operation were the availability of large quantities of well-drained granular material and the fact that certain preliminary work was completed before freeze up.

Preparatory work included placement of one-half million cu yd of sand and the select material for the downstream filter zone, on top of which the pervious material was placed.

The winter program mainly involved placement of granular material on the downstream section of the dam, in both east and west embankment contracts, and raising of the perimeter dike around the river section of the west embankment. The winter work kept the project on schedule and kept some 400 persons employed.

Placement during the winter of materials that have to be compacted is considered unique in western Canada. From October 1959 to March 1960, the contractor moved 1,208,000 cu yd of earth materials as well as 2,849,000 tons of granular material.

Throughout the same period, work on the superstructure of a construction bridge spanning the channel between the east and west abutment projects continued. The bridge will provide access across the river during first stage of dam construction and will facilitate construction of the final closure dike, which will divert the river through the tunnels.

The contractors did most of the cold-weather earthmoving with two types of equipment, trucks and self-propelled scrapers.

Perini Ltd. mustered a fleet of some 70 trucks from nearby localities to deal with its contract for excavation and hauling materials for Stage I of the embankment on the east side of the river. Trucks were a must since the long haul included an ice-crossing on the frozen river.

Piggott Construction Ltd. used fifteen 24-cu-yd self-propelled scrapers and five 19.5 cu yd scraper units (making the project one of the biggest scraper jobs presently under-way in Canada). Piggott's contract consists of excavating and placing materials for Stage II of the embankment on the west side of the river, and a portion of the river channel.

Fifteen contracts have been let totaling approximately $24 million. The last contract, over $8 million and largest to date, was awarded in March. It's

NOW: Main embankment shapes up after winter's labor.

construction of the downstream section of the diversion tunnels. This contract is a joint venture including Peter Kiewit Sons Co. of Canada Ltd., Al Johnson Co. of Canada Ltd., and Poole Construction Co., Ltd.

Work has been completed on seven contracts, including 28.5 miles of access roads, the headquarters buildings, and the substructure of the construction bridge.

Under an agreement between the governments of Canada and Saskatchewan, Canada is constructing the reservoir, with a capacity of 8 million acre-ft, by building the two earthfill dams. South Saskatchewan River Dam is on the South Saskatchewan River, 20 miles upstream from the town of Outlook. Qu'Appelle Dam is located in the Qu'Appelle River Valley. Appurtenant works are also the responsibility of the federal government.

The province will build, operate and maintain, as its part of the project,. all main canals, secondary reservoirs, distributaries, pumping stations, and all works required for the conveyance and distribution of irrigation water. Saskatchewan is also responsible for construction and operation of the power facilities.

Canada and Saskatchewan will share the cost of building the works necessary for creation of the reservoir, with Canada carrying 75% of the financial burden. The province's share, however, may not exceed $25 million.

Canada is paying engineering costs on the dam and reservoir, and 25% of the penstock cost for the power plant.

The Prairie Farm Rehabilitation Administration is responsible for design and construction of the dams and reservoir works.

Work is under the general direction of G. L. MacKenzie, director of PFRA. G. N. Munro is chief engineer. J. G. Watson is assistant chief engineer for PFRA, and W. B. Thomson is construction engineer.

Vital Statistics

Main earthfill dam

Height	210 ft
Crest length	16,700 ft.
Volume	40,000,000 cu yd
Reservoir capacity	8,000,000 acre-ft
Powerhouse capacity	150,000 kw
Irrigation works	500,000 acres

Auxiliary earthfill

Height	90 ft
Crest length	9,000 ft

Spillway

Over-all length	17,000 ft
Discharge capacity	265,000 cfs
Total estimated cost	**$192,000,000**

New Haven Bridge Project

USES **USF**

leave - in - place

BRIDGE FORMS

Designed by D. B. Steinman

General Contractor Mariani Const. Co.

Owner; State of Connecticut

The New Haven bridge provides overhead crossing of the New York, New Haven and Hartford Railroad in New Haven, Conn. Just completed in November, 1959, it has the longest box girder spans in the world.

Again U.S.F. steel forms were depended upon in utilizing the newest in safe, time-saving and money-saving methods. We'll send full details.

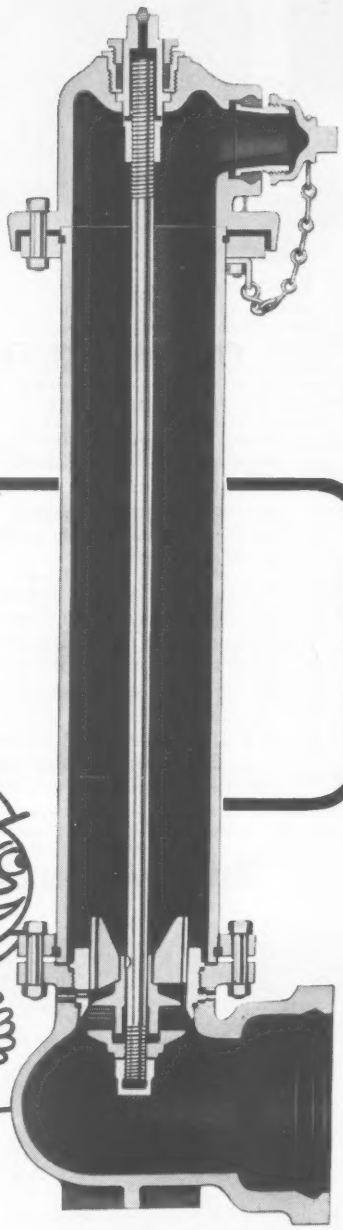
USF

UNITED STEEL FABRICATORS, INC.
WOOSTER, OHIO

Highway Guard Rail • Bridge Flooring
Steel Forms for Concrete Bridge Decks
Corrugated Metal Pipe • Window Wells
Metal Doors & Frames • Metal Buildings

THE R. D. WOOD HYDRANT

The R. D. Wood Hydrant is simple in design, yet offers all the features needed for the utmost reliability. Your community would have to look a long time before it would find another hydrant so serviceable and rugged. For full neighborhood protection at minimum outlay, look first at R. D. Wood Hydrants.



BRONZE PARTS

Every point of friction is protected by at least one bronze surface. This assures against rust and interference with operation. The stuffing box, gland and operating nut are *all bronze*—corrosion-proof!

AND THESE FEATURES, TOO:

Valve opens against water pressure, remains closed in case of accident. Head revolves 360°. Optional break-point flange and breakable stem coupling permit quick repair without excavating. Optional extension piece can be inserted without shutting off water. Available with bell, mechanical joint or flange pipe connections; conventional or "O" ring packings.

Conform to latest AWWA specifications

R. D. WOOD COMPANY

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers also of Mathews Modernized Hydrants, Mathews Flange Barrel Hydrants, R. D. Wood Gate Valves, and "Sand-Spun" Pipe (centrifugally cast in sand molds)

UNION

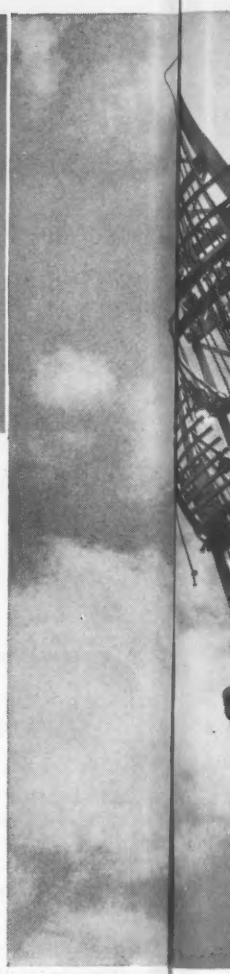
The High I. Q.* Wire Rope Organization

**Integrity — Quality*

More and more purchasing agents are employing a new concept in buying called value analysis. In it the integrity of the seller weighs heavily since it assures maintenance of uniformly high product quality.

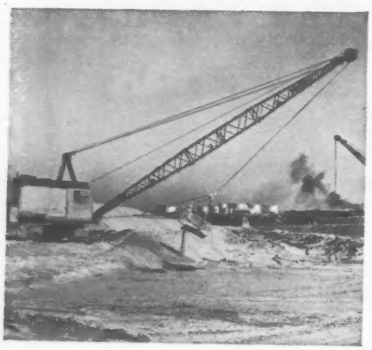
Advanced procedures and equipment in Union's foremost laboratory enable our technicians to determine the life expectancy of wire ropes. Much of the time of our engineers is spent in the field checking to see that Union wire ropes live up to or exceed predetermined life expectancy rating under varying operating conditions.

In living with wire ropes and slings from the cradle to the grave, our engineers found new constructions were necessary. On many of the tougher jobs the life expectancy of standard wire ropes of the highest quality was too short. To equip the machines handling these tough jobs with the ultimate low cost wire rope and slings, Union developed the Tuffy family. Each member is a special construction tailored to fit a special purpose. For many years Tuffy's ultimate low cost wire ropes and slings have helped battle the rising cost of operation.



Wire
and
world
of w

Tuffy Wire Ropes and Slings Are Tailored For Tough Jobs

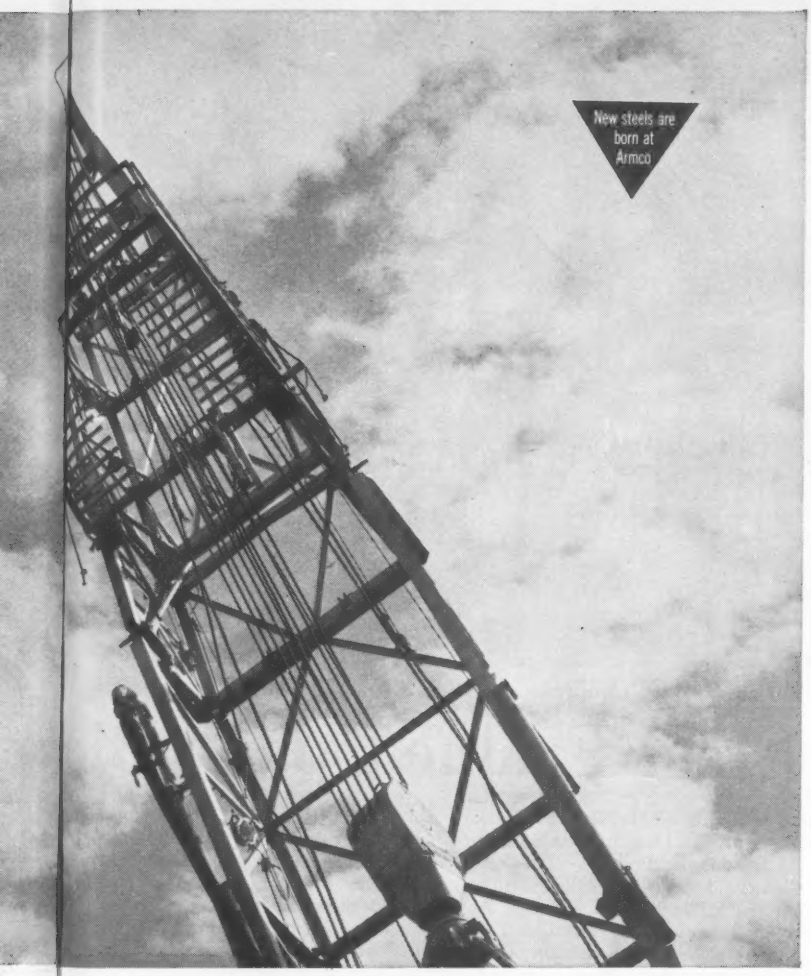


Tuffy Balanced Dragline Rope

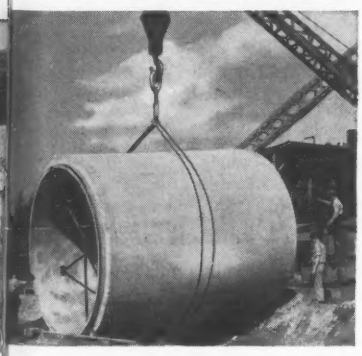
Tuffy Balanced Scraper Rope

Tuffy Balanced Dozer Rope

Tuffy Sling Hoist



Wire ropes travel hundreds of ton-miles on rotary oil drilling rigs lifting and lowering drill pipe and tools out of and into the hole. On the world's deepest oil well Tuffy Rotary Line handled the longest string of well casing ever run. The final live load totaled 700,000 lbs.



Union Distributors Are Selected On High I. Q. Standards

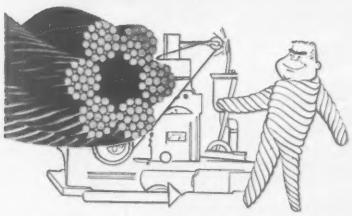
They know from experience that they can serve you with quality backed by integrity and enjoy a high expectancy for your repeat business. Look up your Union Wire Rope distributor in the yellow pages of your phone book. He is coached in helping you before and after the sale. Backing him up is an expert staff at a nearby Union Wire Rope branch office and warehouse.

Tuffy Balanced Slings and Hoist Lines

Tuffy® Wire Rope Tips

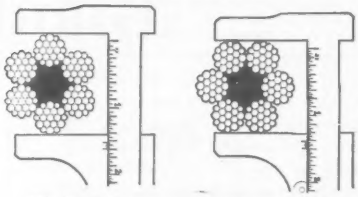
Money-Saving Information on the Use and Care of Wire Rope

Wire Rope is a "Machine" of Moving Parts



...and every part must fight destructive forces! A "look inside" a section of wire rope reveals a precision assembly of working parts. They are subjected not only to external and internal stresses, but also to heavy surface pressures and abrading. All these forces may be sustained while the rope is running at high speeds, and abruptly changing direction. That's why different uses require different constructions of wire rope.

How to Measure Rope Diameter



Right Way *Wrong Way*

There's only one right way: Use machinist's calipers, and be sure to measure the widest diameter. A slight shift of the rope in the calipers (shown at right above) might cause ordering an undersize rope.

How to Measure Tread Diameter

Easy, and important. Select the smallest sheave or drum to be used with the new wire rope, and measure actual diameter at lateral center (shortest dimension) of tread.

Would you like a copy of a booklet in which more than a score of Tuffy Tips like those above are reproduced. If so, write Union Wire Rope Corporation, 2428 Manchester Ave., Kansas City 26, Missouri.

UNION Wire Rope

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Southwest Steel Products

3-C

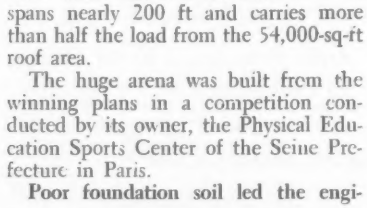
This huge rigid frame provides 54,000 sq ft of column-free area for a Paris gymnasium.

Giant Steel Frame Spans Big Gy

Key to a column-free interior for France's largest gymnasium is a giant box-section portal frame—a rectangular bent with curved knee haunches. It spans nearly 200 ft and carries more than half the load from the 54,000-sq-ft roof area.

The huge arena was built from the winning plans in a competition conducted by its owner, the Physical Education Sports Center of the Seine Prefecture in Paris.

Poor foundation soil led the engineers to limit the number of major columns to six. Here is their solution to the framing problem:



CONTINUOUS GIRDERS carry over half the roof load to interior portal frame.

• The rigid frame bisects the building, spanning across its width. It forms the ridge of a shallow-rise gabled roof in the long (east-west) cross-section of the building.

• Roof girders, spaced at 16 ft 5 in. c-c, span two 136-ft bays along the east-west axis from light exterior columns to the centrally-located frame. Designed for continuity and haunched at their ridge connection with the main portal frame, these girders form the roof's gabled contour.

• Channel-shaped sections (toed inward) trace the gabled contour at the longitudinal spandrel line. They frame between the six major columns—two supporting the main portal frame and four corner columns.

• light steel purlins, spaced about 4 ft c-c, span between the girders and support a corrugated roof deck.

The fabricator made the main portal girders out of thin web plates, slightly more than $\frac{3}{8}$-in. thick, and pairs of flange plates, 1 in. and $1\frac{1}{16}$ in. thick. They are welded into a box section 2 ft wide by 7 ft 7 in. deep. Exterior flange plates, 32 in. wide, project 4 in. beyond the web plates. Continuous plates and angles, welded to the interior, stiffen the section.

The two columns supporting the main frame and the exterior portal frames are cross-shaped in section, tapered in elevation in both planes.

To save time in placing the main portal frame, the contractor reversed the usual order of erection. First, electrically-powered winches, mounted atop two masts, lifted the 66-ton girder. Two truck-mounted cranes then tilted the two 20-ton, 41-ft-high columns into position. They had been laid on edge along the frame axis. Ironworkers bolted the web and flange splice plates, a job that required 480 bolts for each connection.

The engineers designed the hinged base detail of the frame to twansmit its 265-skip horizontal thrust through big concrete foundation blocks bearing laterally against the soil. These foundation blocks rest on concrete caissons almost 50 ft deep. A rocker bearing and a sloped concrete bearing surface eliminate bending and shearing forces at the frame base.

Because of the uncertainty of the soil strength, however, the engineers decided to connect the two frame bases with a steel tie rod as a safety precaution. To be fully effective, the tie rod had to be prestressed; otherwise it would not resist a sufficient proportion of the horizontal force until the soil had started to fail and the frame legs had started to move outward.

Solar energy provided an unforeseen

Field splice needed 480 bolts

Big Gymnasium

means of prestressing the tie rod. Detailed for an expansion of $\frac{3}{8}$ in. (for a prestress of 130 kips), the tie rod reached the required temperature from the heat of the midday summer sun. The bolt holes lined up for easy connection, and it was not necessary to apply artificial heat with blow torches, as originally planned.

Wind bracing consists of horizontal trusses formed by angles connected in an x-pattern between the portal frames and the first interior roof girders along the length of the building. These trusses transmit north-south wind forces to braced bays at the end walls and to the main frame at the center.

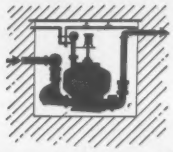
Horizontal trusses on both sides of the main frame transfer east-west wind forces into the exterior portals.

To eliminate cracking in the masonry of the north and south walls, the engineers used steel girts to carry the masonry. This will prevent cracking caused by the restraint of concrete foundation walls, which might result in conventional wall construction. East and west walls are corrugated asbestos, also supported on girts.

The building's designer was E. Maigrot, chartered architect; structural steel contractor was Ets. Antoine Besson & Lepeu; and the general contractor was Societe Generale de Construction, d'Etudes et de Prefabrication. All are from Paris.

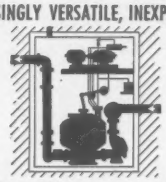
Which sewage lift station is best for your job?

TOPS IN DEPENDABILITY AND SAFETY



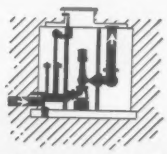
Concrete or steel underground station with Shone® Type S pneumatic ejector, mechanically controlled (warranted 25 years). Remote air supply. Nothing electrical; maintenance free, operates even under water. For municipalities and large subdivisions.

SURPRISINGLY VERSATILE, INEXPENSIVE



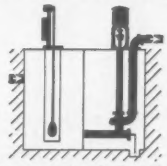
Shone® Type SAC station, underground in concrete vault. Mechanically controlled ejector (warranted 25 years) has its own compressor. Frequently less costly than package stations. Finds use everywhere.

PACKAGE STATION



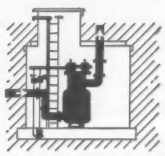
Quality underground station with vertical, short-coupled (Series 6260), dry pit centrifugal pumps. Quality design and equipment give good service life at nominal cost. For small permanent stations, growing areas.

LOW FIRST COST—EASY INSTALLATION



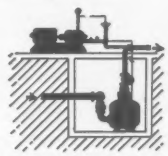
Two-compartment steel basin with centrifugal vertical wet pit pump. Pumps are not submerged; motors protected from flooding. Low first cost; fast installation. For buildings, small growing subdivisions.

ULTIMATE IN PACKAGE DESIGN



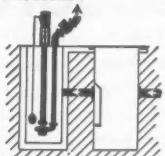
Package underground station with Expelsor® pneumatic ejector, electrode controlled. Sanitary and dependable, low maintenance, easy to service. Recommended for municipal and subdivision applications.

BUILDING TYPE STATION



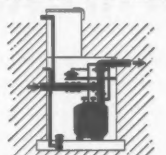
Expelsor® pneumatic ejector station designed for use in buildings. Compressor is on basement floor; ejector on floor below. Sealed installation gives safe, odorless handling of sewage indoors.

SPECIAL PROBLEMS?



Centrifugal vertical wet pit pumps with adjoining settling basin. Good for areas where sand or old sewers create problems. Special pump construction for abrasive or corrosive conditions, industrial wastes.

MAXIMUM RELIABILITY—MINIMUM SPACE



Package underground station. Expelsor® pneumatic ejector has two compartments, duplex compressors and controls. Excellent service accessibility. Especially suited for subdivision and municipal lift stations.

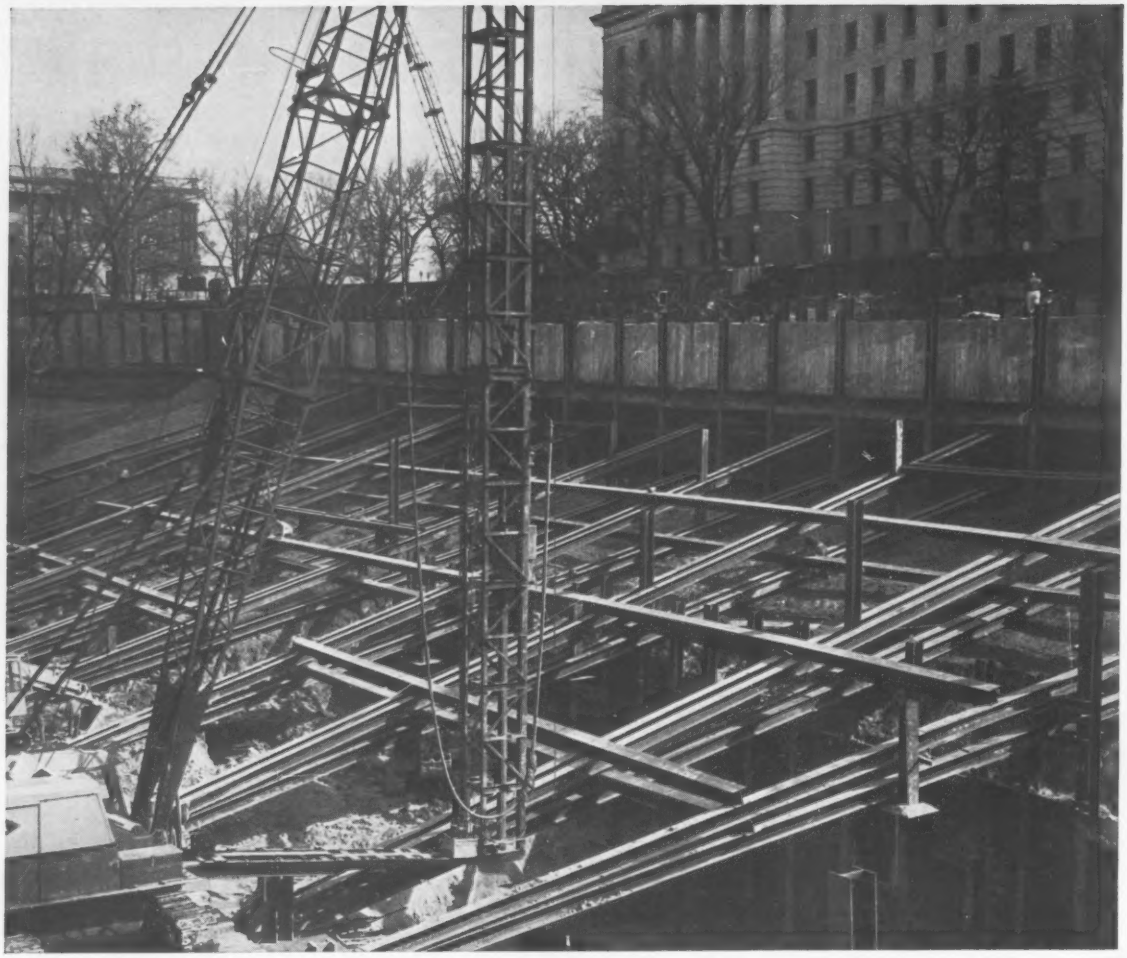
L-5911

The answer depends on the job. Is it to be a temporary station? What about future loads? How much maintenance will it get? What type of power is available? These and many other questions must be weighed carefully and without bias. In making the decision, why not put Yeomans 61 years' experience (59 on underground stations alone) to work? Because Yeomans builds the only complete line of sewage lift stations in the industry, recommendations are impartial and in your best interest. Phone, wire, or write now.

YEOMANS

1999-1 North Ruby Street, Melrose Park, Illinois

SPECIALISTS IN SEWAGE LIFT STATIONS—THE COMPLETE LINE



Foundation work at new House of Representatives Office Building, Washington, D. C. Architect: J. George Stewart, Architect of the Capitol; associate architects: Harbeson, Hough, Livingston & Larson; structural engineers: Shelton & Stanford; general contractor: McCloskey & Co.

STEEL H-PILES withstand pressures of 1500 psf

Tremendous pressures created by adjacent buildings, heavy traffic, and difficult soil conditions, made excavating hazardous at the new $64 million House of Representatives Building in the nation's capital. McCloskey & Co. of Philadelphia, contractors for the foundation work, licked the problem by using steel to provide a support of ample strength while maintaining adequate working areas.

The shoring system of H-pile soldier beams, wales, and rakers, was designed to withstand estimated lateral pressures as high as 1500 psf in some parts of the site. H-Piles were driven at 5-foot centers to act as soldier beams, and as excavation progressed, 5-foot long oak planks were installed between the flanges. H-beams used as wales and as rakers were used to support this soldier beam retaining wall, which is to be left in place until completion of the project. Bethlehem supplied 2800 tons of H-piles for the soldier beams and structural shapes for the shoring.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.
EXPORT DISTRIBUTOR: Bethlehem Steel Export Corporation

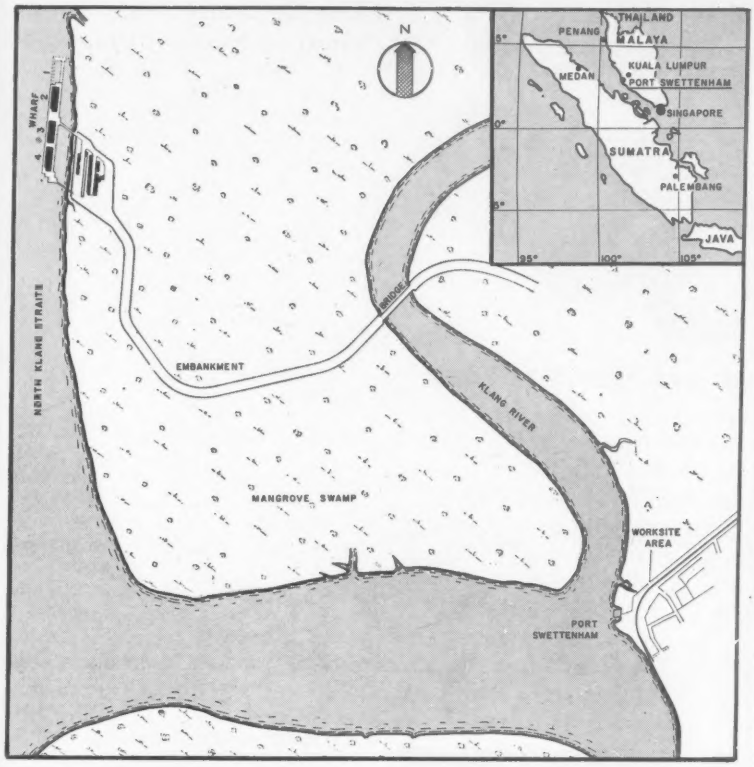
Steel

for Strength
. . . Economy
. . . Versatility

BETHLEHEM STEEL

BETHLEHEM STEEL

International



Malay Federation Gets New Harbor

The Malayan Railway Administration has awarded a contract for about $9.5 million to Christiani & Nielsen, Danish engineers and contractors, for harbor development at Port Swettenham, on the west coast of the Malay Peninsula. The work is being financed by the American Development Loan Fund.

Three ship berths, transit sheds, an access road and bridge, and associated reclamation works will be built under the contract.

The new wharf will be located about 3½ miles from Port Swettenham, on the North Klang Straits. It will be about 200 ft wide by 1,700 ft long. A reinforced concrete deck will be supported by prestressed concrete piles.

About 1,500 piles will be required for the wharf and bridge, with maximum anticipated length of 150 ft. They are hollow cylindrical piles, with outside diameter of 34 in. and 4½-in. wall thickness. Prestressing will be done by 24 ⅜-in. strands. Maximum weight of pile will be about 30 tons.

About 40,000 cu yd of fill will be necessary to create a shore installations area adjacent to the wharf. An embankment will carry road and rail traffic across a mangrove tidal swamp to the bridge across the Klang River.

The bridge is steel, with 10 spans of 72 ft each and one 60-ft span. It will carry a single-track railroad, two sidewalks, and 22-ft roadway. Prestressed concrete piles will support the structure.

Construction of the entire project is scheduled for completion early in 1963.

USSR to Tap Siberian Hydropower Reserves

A vast reserve of hydropower is being tapped as the USSR begins development of five of Siberia's biggest rivers. A recent East German report confirms the views of Maj. Gen. Emerson C. Itschner (ENR Apr 23, 1959, p. 27).

Exploitation of these five rivers, the Yenesey, Angara, Ob, Irtysh and Lena, will, it is said, be 2½ times as profitable as development of Soviet European rivers.

Biggest system is planned for the Irtysh River. Sixteen power plants will be constructed with a total output of about 20 billion kwhr.

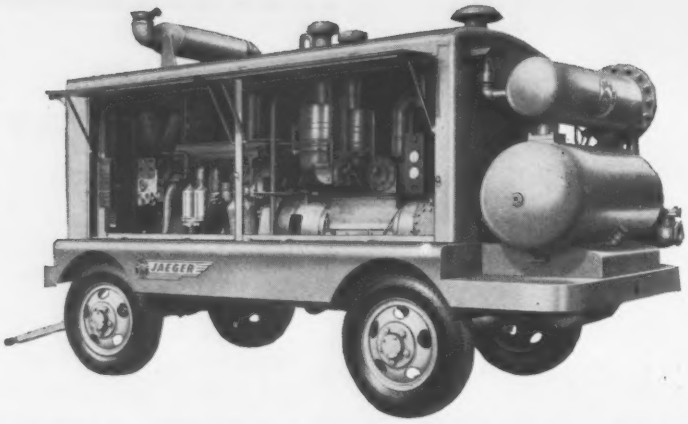
Three more plants are scheduled for the Yenesey.

(*International continued p. 44*)

HySpar
BAR RUST
protects
METAL,
YOUR MONEY
AND TIME
SPRAY • BRUSH • DIP
coatings for fast application, sure protection. . . .
CALL for our Technical Rep or SEND your "Finishing Problem" for PROMPT, PERSONAL ANALYSIS BASED on YOUR needs for either STRUCTURAL coatings or product finishes.

Your Copy
. . . of our new brochure on STRUCTURAL COATINGS is ready now. It's FREE . . . complete with color chips, formula facts and application data based on 50 years of manufacturing experience.

Call or Write
The HARRISON
Paint & Varnish Co.
— MIDLAND —
INDUSTRIAL DIVISION
CANTON 1, OHIO



JAEGER "900" is the efficient rotary

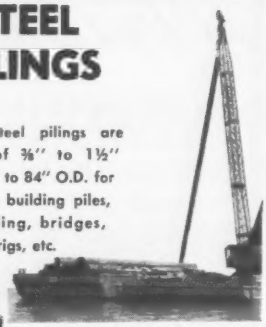
Delivers in excess of 900 cfm at a fuel-saving, engine-saving 1700 rpm, using the same GM 6-110 diesel which others operate at 1800. See your Jaeger distributor, or send for Catalog.

THE JAEGER MACHINE CO., 200 Dublin Ave., Columbus 16, Ohio

POSEY WORKS FOR BETTER-

STEEL PILINGS

Posey steel pilings are made of ⅜" to 1½" plate up to 84" O.D. for caissons, building piles, wall piling, bridges, drilling rigs, etc.



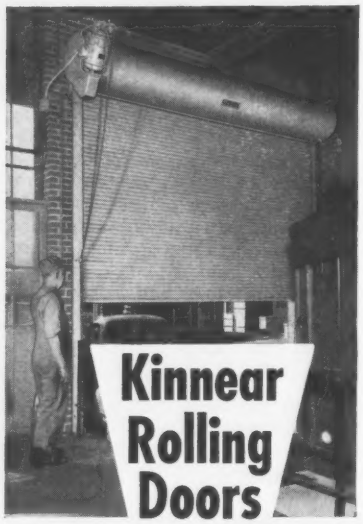
For FREE 16-page illustrated catalog, write:

POSEY IRON WORKS INC

Custom Fabrication For Over 50 Years

DIVISIONS:
• Iroquois Asphalt Plants • Mixers and Blenders
• Tunnel Forms • Industrial Heating • Foundry
• Large OD Steel pipe

561 S. PRINCE STREET LANCASTER, PA.



The "Keystone" of Efficiency

Kinnear originated the efficient door curtain of **interlocking steel slats**. . . introduced the **single-shaft torsion spring** that gives **uniform** regulation of operating ease from a **single adjustment wheel.** Kinnear's **coiling upward action** is your best investment in doorway service and protection! Write for free catalog!

The KINNEAR Manufacturing Co.

KINNEAR ROLLING DOOR
Saving Ways in Doorways

1820-40 Fields Avenue
Columbus 16, Ohio
1742 Yosemite Ave.
San Francisco 24, Calif.

East Germany Builds Pumped Storage Plant

East Germany is reported to have started construction of a pumped-storage generating plant that will be supplying 40% of the zone's electric power output by 1965.

The plant will have initial capacity of 40,000 kw and eventually will produce 320,000 kw. It is located at Hohenwarte in an iron-ore mining region of Unterwellenborn.

The project will have a low-level reservoir with a storage capacity of 4,480 acre-ft (195 million cu ft) and a second reservoir 1,015 ft higher in elevation.

At night when power demands decline, the water will be pumped through eight 8.5-ft-dia pipes up to the higher reservoir at a rate of 3,530 cfs. During the day, the water will fall back through the turbines at a rate of 4,580 cfs and drive eight generators of the Hohenwarte plant.

Reports are that the first 40,000-kw generator will go into operation in the summer of 1963.

Total cost of the project is unofficially estimated at $78 million.

Britain Puts Brakes on Nuclear Power Program

Great Britain, which had jumped head first into the nuclear power pool, has decided to tread water for a while with its nuclear power station program, and expand construction of fossil-fuel plants.

Greater availability of coal and oil and new design developments for these power plants explain the shift according to the government.

Minister of Power Richard Wood told the House of Commons that the point at which nuclear power generation breaks even with conventional power generation is farther in the future than was expected.

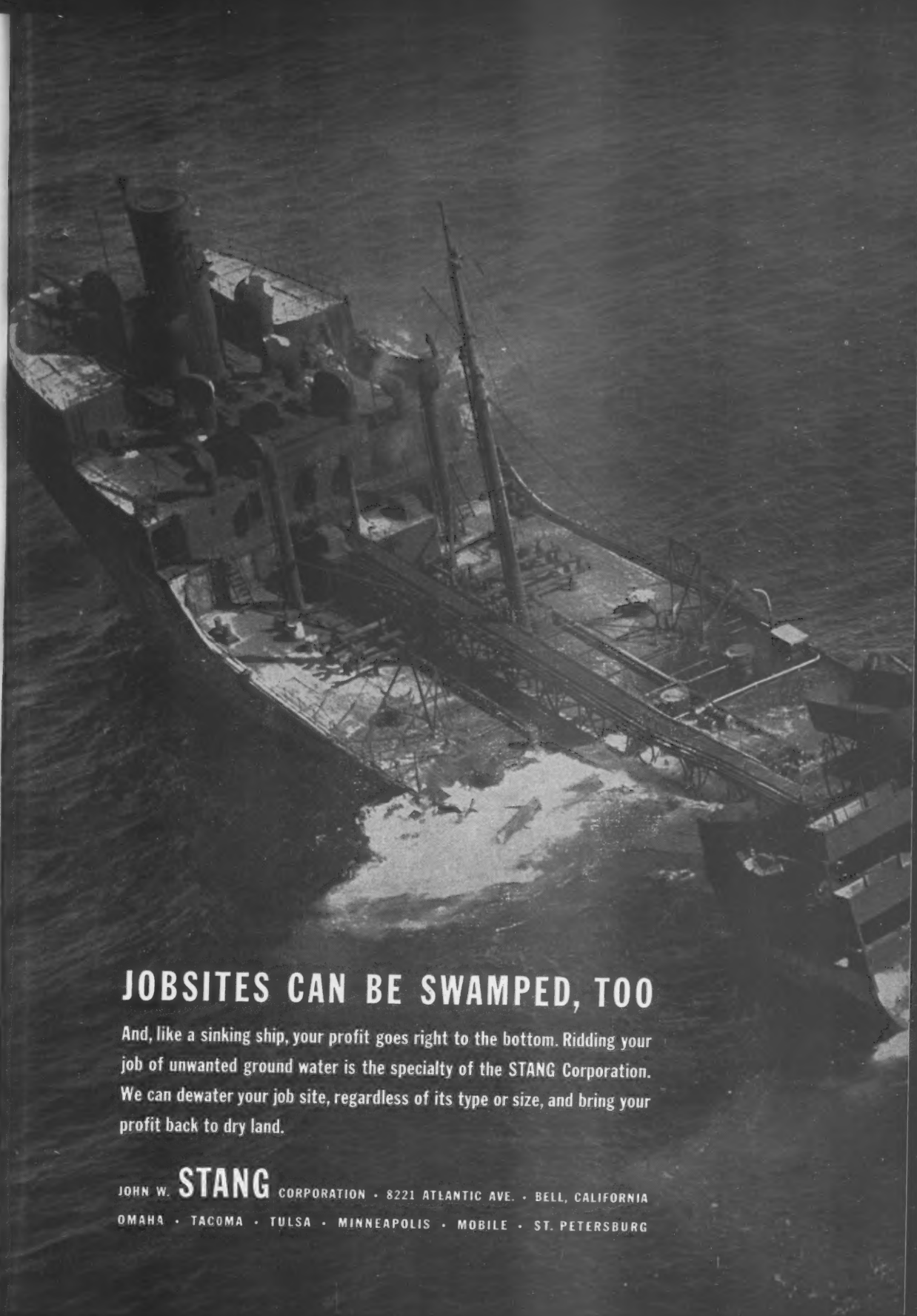
Conventional power stations that are designed at the present time cost 25% less than nuclear stations, the government says.

Instead of the 5,000 to 6,000-mw nuclear-power-production target aimed at for 1966, the stretched out nuclear program will shoot for 4,500 mw by that time, and 5,000 mw by 1968.

Conventional power plants to be constructed in the next seven years, however, will boost nation's coal consumption by 5 million tons.

A net saving of about $252 million extending over a six-year period is expected to be achieved.

(*International continued p.* 46)



JOBSITES CAN BE SWAMPED, TOO

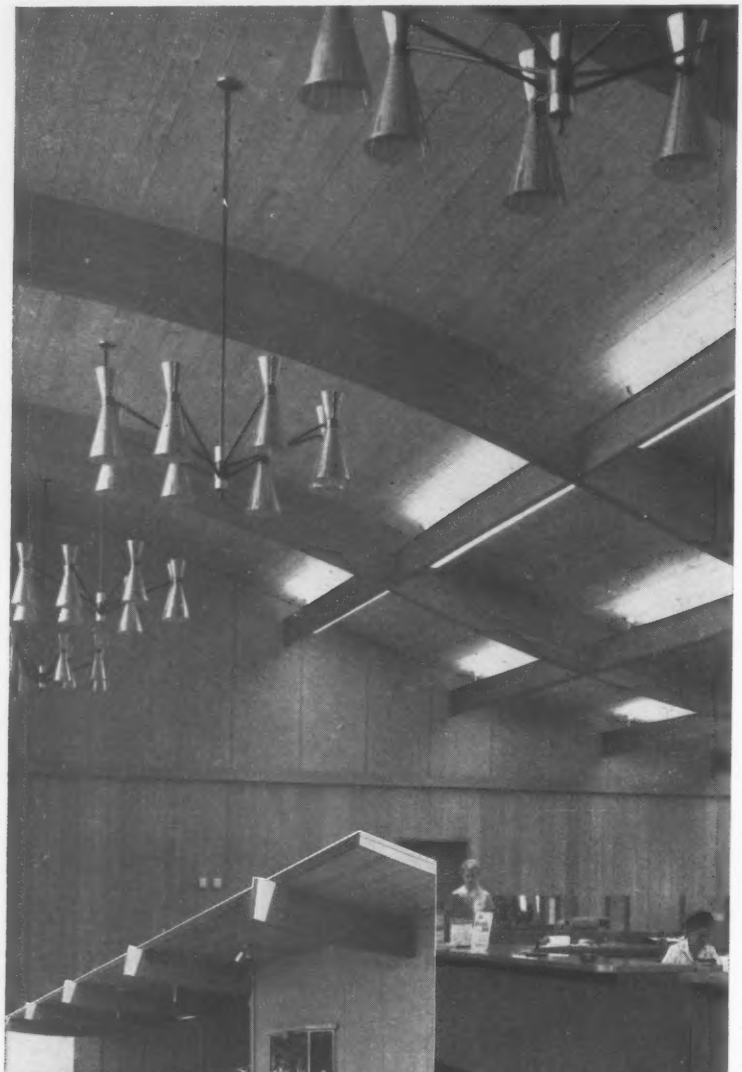
And, like a sinking ship, your profit goes right to the bottom. Ridding your job of unwanted ground water is the specialty of the STANG Corporation. We can dewater your job site, regardless of its type or size, and bring your profit back to dry land.

JOHN W. **STANG** CORPORATION · 8221 ATLANTIC AVE. · BELL, CALIFORNIA

OMAHA · TACOMA · TULSA · MINNEAPOLIS · MOBILE · ST. PETERSBURG

First National Bank, Coburg Road branch, Eugene, Oregon. Architects: Balzhiser, Seder & Rhodes, Eugene, Oregon. Contractor: John M. Steinmuller, Jr., Eugene, Oregon.

Space provided: main banking room, safe deposit vault, employees' lounge, men's and women's rooms, furnace room, storage area. ***Structural framing:*** double curved beams spaced at 15'. ***Exterior walls:*** rough cut siding, stucco, stone. ***Interior walls:*** wood paneling, plaster, metal wall tile. ***Heating:*** forced warm air duct system. ***Ventilating:*** refrigerant forced air system. ***Lighting:*** fluorescent and incandescent. ***Floors:*** asphalt tile over concrete slab. ***Roof:*** built-up felt and tar with crushed Haydite over striated Tim-Deck. ***Area:*** 3,468 square feet. ***Cost per square foot*** including 24,600 square feet of paved parking area: $14.84.



The ability of glulam timbers to be formed in almost any desired shape provides an ideal combination of distinctive design, beautiful appearance and permanent, economical construction.

TIMBER STRUCTURES, INC.

P. O. BOX 3782-C, PORTLAND 8, OREGON

Division Offices in Ramsey, N. J.; Schiller Park, Illinois; Dallas, Texas
DISTRICT REPRESENTATIVES IN MAJOR CITIES THROUGHOUT THE UNITED STATES
Affiliated Company: TIMBER STRUCTURES, INC., Richmond

Sweet's

Member A.I.T.C. and Producers' Council

. . . International

USSR and Norway Sign Pasvik Hydro Contract

Russia and Norway are starting joint development of hydroelectirc power on the Pasvik River, which is a border stream.

A contract has been signed in Moscow for the first plant, a 52,000-kw station on the Pasvik River.

A Norwegian company, Norelectro, Ltd, will do all the construction work and supply all equipment except the turbines and generators, which the USSR will supply.

Latest reports say the station will be the first of three to be built under terms of a 1957 USSR-Norwegian agreement (ENR Dec. 18, 1958, p. 53) for joint power development of the Pasvik. The USSR agreed to permit the Norwegian company to construct the power station so that Norway might increase employment in the power-construction industry.

Construction will get under way this year; generating sets are to be commissioned in August 1963. The station, which will be located underground, will supply current to the Kola peninsula grid.

Private Industry Spurs Spain's A-Power Program

Spain will gain three more nuclear power plants if a proposal by two privately owned groups, Cenusa and Nucleonor, is accepted by the Industry Ministry.

Nucleonor proposes to build a station in the region of Santa Maria Le Garona to supply electric power to the industrialized city of Burgos.

One atomic reactor would power two 300,000-kw units and possibly a third that is expected to be installed at a later date. Plans call for completion by 1960.

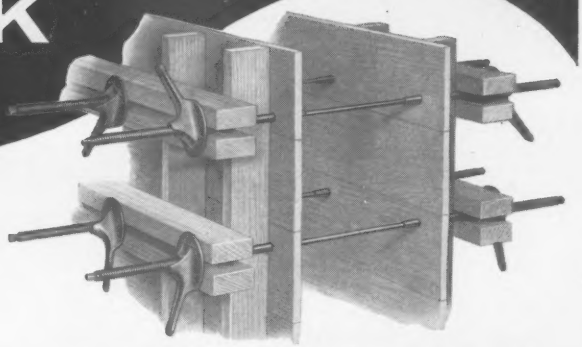
The Cenusa program is for two 250,000-kw stations. One would be located about 55 miles from Madrid on the River Tagus. It would start feeding electricity to the Madrid and central peninsula area by 1968. The second is planned for a site on the Guadalquivir River near Seville in the deep south of Spain. It would be completed by 1970.

ENR Index Is Ready

ENR's index of Editorial Content for January through June is now being sent to those on our index mailing list. The index is free. Copies of the '58 and '59 indexes also are available. To put your name on the mailing list, write: Indexing Department, Engineering News-Record, 330 E. 42nd St., New York 36, N. Y.

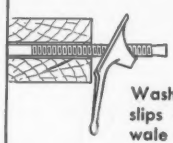
When job conditions call for this type of Heavy-Duty Tie . . .

use SUPERIOR TILT LOCK CLAMPS

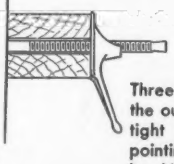


with SPECIAL Safety-Type Handle Washers

The malleable Handle Washer combines handle, washer and wrench—Designed for absolute safety; cannot fall off threads when load drops off or when handle is hit accidentally.



Washer, in tilted position quickly slips over stud rod threads to wale and is seated.



Three full turns on the threads of the outside rod bring it flush and tight against the wale. When pointing upward, the handle may be hit accidentally or pressure released during pouring. This may cause the handle to turn 180°, but the safety feature of 3 complete turns makes it impossible for the clamp to fall off the thread.

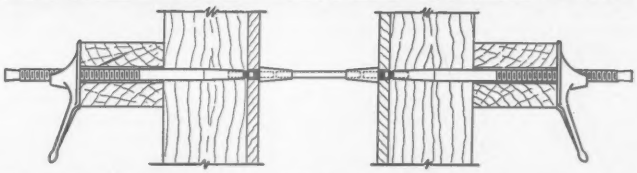
The "safety in use" of Superior's Handle Washers for Tilt Lock Clamps is shown at the left. The Tilt Lock Outside (Stud) Rods have outstanding features, too. The Outside Rod has ⅞" threads, five to the inch, rolled on a ¾" high carbon rod. This compares with the ¾" thread cut on a ¾" rod usually supplied. Cold rolled threads are tougher, and therefore more resistant to damage, and their contour greatly reduces the clogging of concrete and facilitates cleaning.

The Tilt Lock Outside Rod has a heavy cold forged rectangular end section that is ¾" wide and ½" thick, to which the Handle Washer is applied as a removal wrench. This forged section is practically indestructible, never becomes rounded after numerable reuses as does a milled end. Therefore, it is never necessary to use a Stillson.

Superior Tilt Lock Clamps are supplied with Outside Rods 16" long and 20" long, for both ⅜" and ½" inside tie rods. Extensions are available where field conditions require Outside Rods longer than 20".

Superior supplies high tensile inside rods with rolled threads. Form layouts and estimates are prepared from plans without charge or obligation.

with Cone Nuts for Spreader Action



Where it is desirable to use Tilt Locks with Superior Cone Nuts for spreader action or other reasons, Tilt Lock Rods are adapted for use with Cone Nuts as illustrated above.

Tilt Lock Clamp Assemblies may be rented with a ninety day option to purchase.

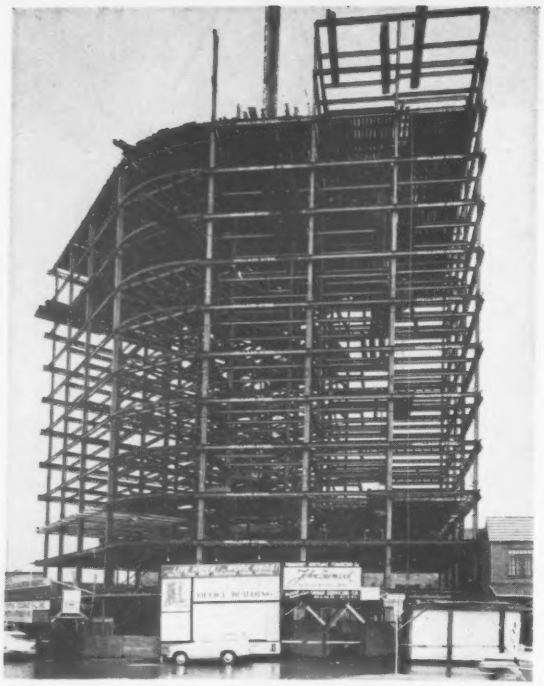
SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Illinois (A Suburb of Chicago)

New York Office
39-01 Main St., Flushing 54, N. Y.

Houston Office
4101 San Jacinto, Houston 4, Tex.

Pacific Coast Plant and Office
2100 Williams St., San Leandro, Calif.



Steel erection was nearly complete . . .

when stud welding began on two low floors.

Composite Design Strengthens Floors

By Irwin G. Cantor

Structural engineers found composite design an economical method of doubling the live-load capacity of floor-beams in a 13-story office building after the structural steel and formwork had been erected.

The steel erectors had completed nine stories and the general contractor had built the formwork for the lower-floor concrete slabs when a prospective tenant of the Mid-City Center in Queens, New York City, requested an increase in live-load capacity from 50 to 100 psf on the second and third floors. In fact, the leasing of five full floors depended on upgrading load capacity of the two floors enough to support electronic equipment.

The original design specified 4-in.-thick, mesh-reinforced one-way slabs with 2-in. cover over the beam flanges. Concrete encased steel beams were designed for an extreme fiber stress of 22,000 psi as permitted by the New York City Building Code for this type of construction.

The engineers discarded the idea of simply welding top and bottom cover plates to strengthen the beams. Since the formwork was in place, this method would have required removing the wire hangers suspending the beam side and soffit forms.

Composite construction was the logical answer to the problem. But there was a difficulty here, too. The New York City Board of Standards and Appeals requires a minimum cover of 1 in. above the top of the shear connectors. To minimize the added thickness for the concrete slab, since the slab soffit form could not readily be raised, the engineers called for 2-in.-high stud shear connectors, thereby limiting additional concrete thickness to 1 in.

Engineers at the Nelson Stud Welding Division of Gregory Industries, Inc., recommended ¾-in. dia threaded studs with nuts to take the place of the standard head.

This substitution was required because the standard shear connector studs come in minimum lengths of 4 in. Redesign for composite action also required welding cover plates on the bottom flanges of the floor beams.

The contractor used an interesting technique to keep the bottom flanges of the beams free of concrete during the floor casting. It would have been too costly to dismantle the formwork and weld the cover plates prior to concreting. Butting a timber stop between the beam flanges and the soffit boards was also impractical. So the contractor merely poured sand into the forms up to the bottom flange level. After laborers had stripped the formboards, the cover plates were welded and vermiculite fireproofing plaster applied.

Installation of the studs posed no problems. Welders easily reached the top beam flanges, locating the studs between the wire form hangers.

Savings effected by this method of strengthening steel beams should be greater in areas outside New York City. If the original design had been limited to a fiber stress of 20,000 psi, then most of the beams would not have required bottom-flange cover plates.

Architect for the Mid City Center is Jack Brown; structural engineers are Abrahams, Hertzberg and Cantor. Chief construction engineer is Murray Puchall of the Lefrak Organization, owner-builder. Simon Holland & Son, Inc., fabricated the structural steel, and Atlas Erectors erected it. All are from New York City.

Mr. Cantor was the partner in charge of structural design for Abrahams, Hertzbert & Cantor, Engineers.

On-site precasting saves $24 a foot on seawall

ASSEMBLY-LINE precasting of slabs and piles, on-site, reduced costs to $16 a linear foot for 11 miles of seawall built on the several islands of Golden Isles, Hallandale, Fla. This was a saving of $24 a foot compared with the previous method of casting these components in a central yard and transporting them to the site.

Specialized crews cast the slabs directly on the ground, in steel forms which were used twice a day. Piles were cast in 5-mold forms, in 12′ to 16′ lengths. A template of two 54′ beam sections was then anchored into place at the shoreline. This accommodated 6 piles and 5 slabs. Pilings were slipped into its slots and driven. A backhoe then made a cut for the 13′ tie rod between each piling and a concrete deadman, backfilled the trench, then picked up each slab by loops cast into the top and lowered it between two piles.

Capping crews then set the forms for casting the wall cap in place. These mass-production methods built to a peak of 200′ of finished seawall per day.

A total of 20,100 cu. yds. of 3,000 psi ready mixed concrete was used for the 9,450 pilings, slabs and caps. It was delivered by truck mixers of certified design, capacity, mixing speed and water control accuracy.

50 SLABS A DAY were poured where they were to be used. Paper strips at one end gave a smooth surface to take the forms for cast-in-place caps. Wood blocks at other end formed notches to fit with "T" of pilings. Top surface of slabs, designed to face waterway, was troweled smooth (see finished slabs at right).

STEEL BEAM template positioned the piles. Notched slabs fit into the T-shaped piles. Notches are sloped so weight of slabs "seals" the joint.

←

13′ TIE RODS fasten piles to buried 2′ x 2′ x 4″ concrete deadmen. Loops were cast into slabs for easy handling by backhoe.

→

CASTING CAP IN-PLACE: Cap forms were 18″ x 6″; carried ⅜″ reinforcing rods.

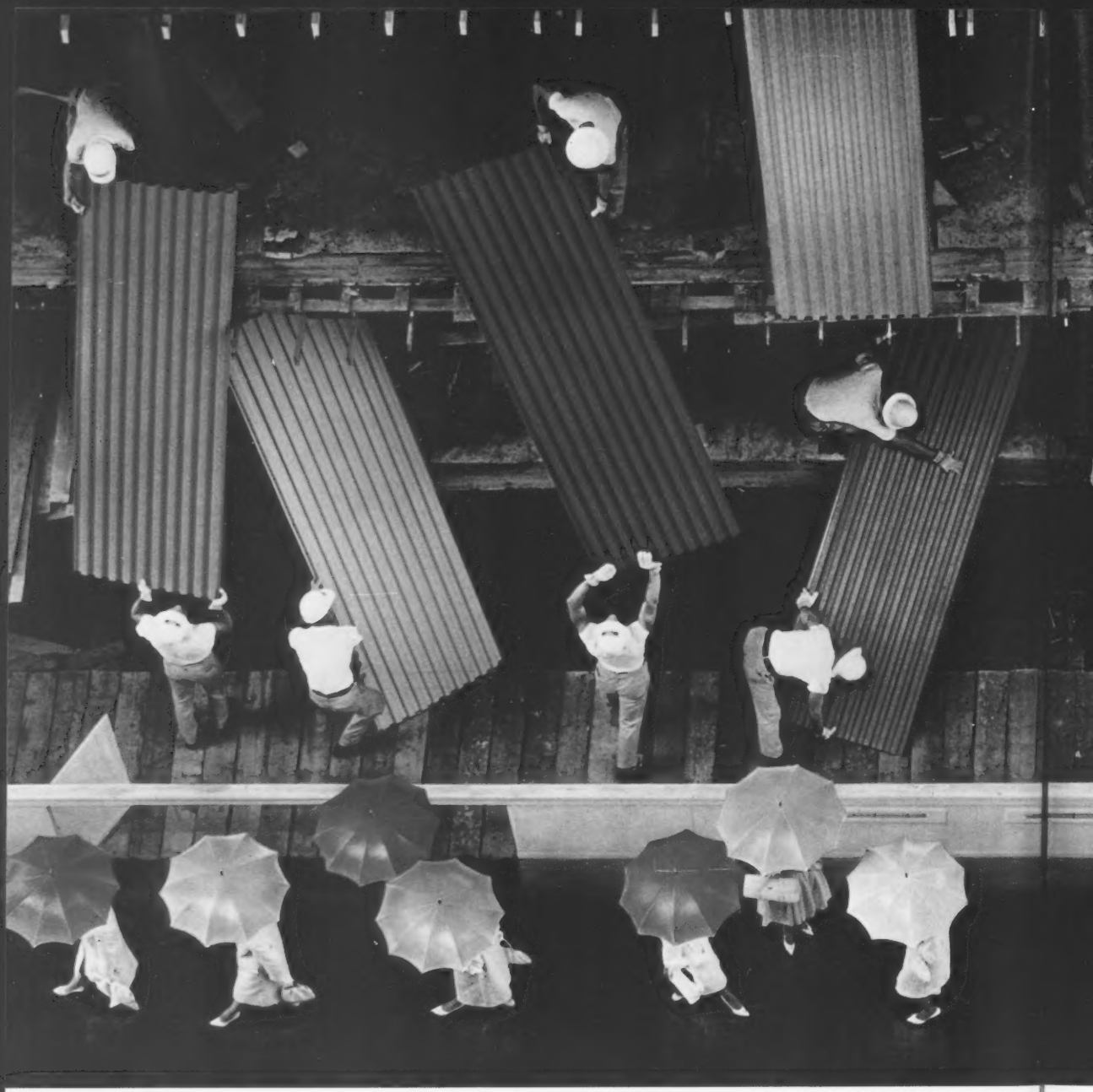
Lyne, Inc., Hallandale, Fla., built and installed seawall.

NATIONAL READY MIXED CONCRETE ASSOCIATION
NRMCA
6 CUBIC YARD
MIXER
MAXIMUM CAPACITY
CERTIFIED BY THE TRUCK MIXER MANUFACTURERS BUREAU TO COMPLY WITH ITS STANDARDS FOR TRUCK MIXERS AND AGITATORS AS APPROVED BY THE N.R.M.C.A.
7 3/4 CUBIC YARD AGITATOR
UNLESS RATED LOWER ON THE MANUFACTURER'S DATA PLATE
N.R.M.C.A. REGISTRY NO.

You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards which are maintained for your protection by the

TRUCK MIXER MANUFACTURERS BUREAU

Blaw-Knox Company, Construction Equipment
Pittsburgh, Pa.
Chain Belt Company
Milwaukee, Wis.
Challenge Manufacturing Company
Los Angeles, Calif.
Concrete Transport Mixer Company
St. Louis, Mo.
Construction Machinery Company
Waterloo, Iowa
Hercules Galion Products, Inc.
Galion, Ohio
The Jaeger Machine Company
Columbus, Ohio
The T. L. Smith Company
Milwaukee, Wis.
Westinghouse Transit Mixer Division
Indianapolis, Ind.
Whiteman Manufacturing Company
Pacoima, Calif.
Willard Concrete Machinery Co., Ltd.
Lynwood, Calif.
Worthington Corporation
Plainfield, N. J.



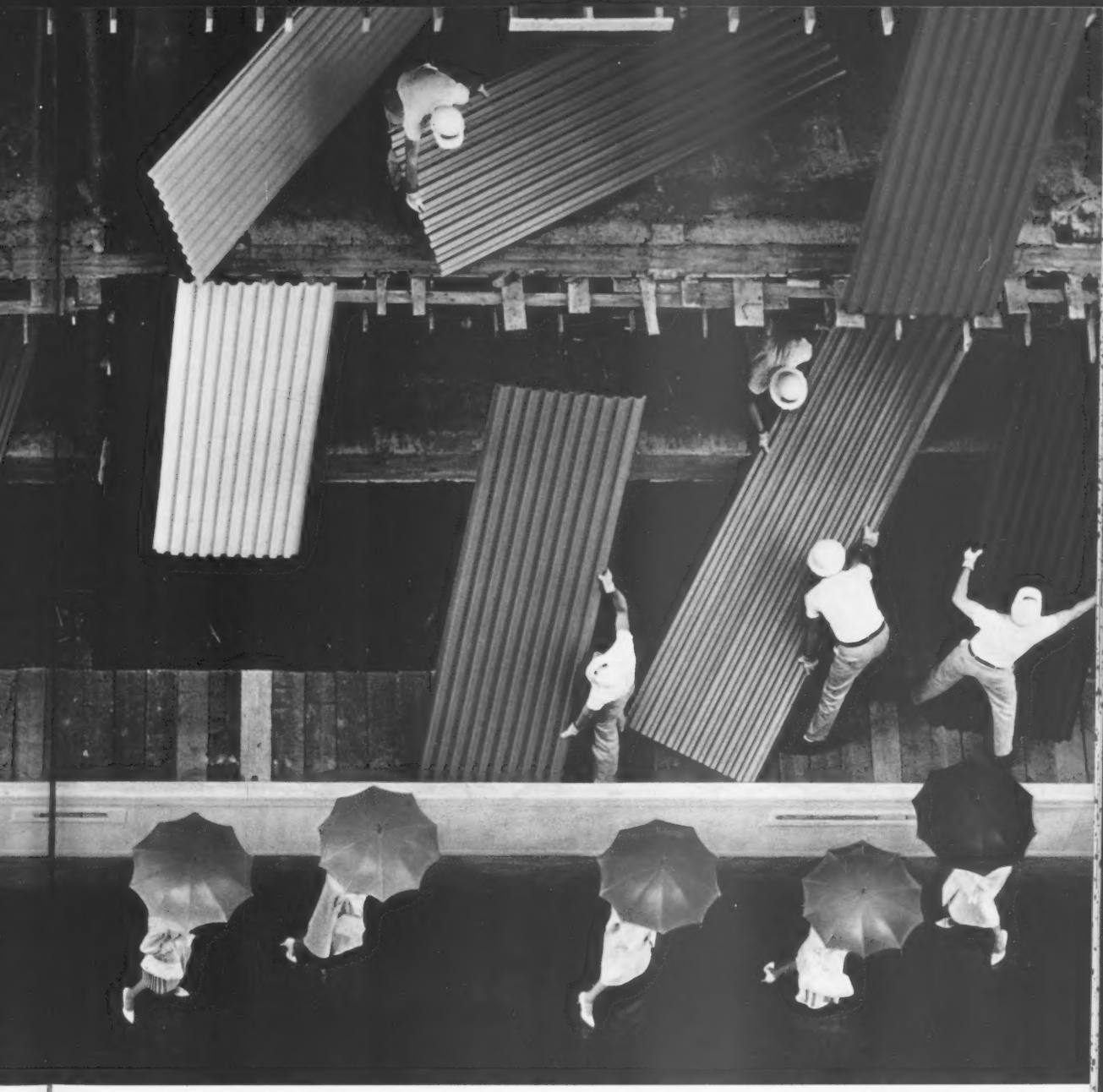
From Alcoa . . . 12 handsome

Yes, you can add the striking new beauty of Alcoa* Alumalure finish—12 hues, including natural aluminum finish—*without adding premium cost!* Whether you're planning an industrial building, school, shopping or recreation center, warehouse, or some other type of structure . . . let your imagination *go* with Alumalure finish!

You won't be hampered by budget. Alcoa Aluminum is light in weight, strong, corrosion resistant—which means it goes up faster, handles easier, requires *no maintenance.* Covers more area faster, too, because it comes in sheets as large as 48 in. wide, 30 ft long. And it's available in corrugated, V-beam, ribbed or flat sheet. Will it *stay* beautiful? Alumalure, a tough, baked enamel finish on aluminum, already has passed the *15-year* mark in a rigorous test of durability!

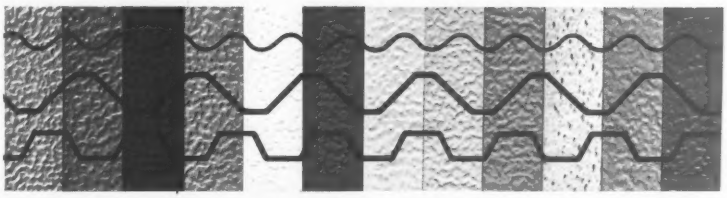
Specify Alumalure finish by name . . . your assurance of the *finest* baked enamel finish, factory applied under rigid quality control. For samples, call your local Alcoa sales office. For color swatches and full technical data, write: Aluminum Company of America, 821-H Alcoa Building, Pittsburgh 19, Pa.

*Registered Trademarks of Aluminum Company of America



Building site, courtesy George A. Fuller Co., New York, N. Y.

ways to please a frugal client



ALCOA
ALUMALURE
FINISH
MADE BY ALCOA

Specify Alumalure finish. Turn page for nearest source of supply!

you can obtain Industrial Building Products with

Alcoa Alumalure finish *and natural*

finish aluminum sheet through these dependable jobbers:

ALLENTOWN
Bethlehem Aluminum, Inc.
920 Cherokee Street
Bethlehem, Pennsylvania

ATLANTA
Southern Alum. Finishing Corp.
1581 Huber St., N. W.
Atlanta, Georgia

The J. M. Tull Metal & Supply Co., Inc.
285 Marietta St., N. W.
Atlanta 3, Georgia

BIRMINGHAM
Hinkle Supply Company, Inc.
2923 Fifth Avenue, S.
Birmingham 5, Alabama

BOSTON
Edgcomb Steel of New England, Inc.
P. O. Box 437
Nashua, New Hampshire

New England Erecting Co., Inc.
321 Commonwealth Rd.
Cochituate, Massachusetts

BUFFALO
Troup Engineering Co.
295 Auburn Avenue
Buffalo 13, New York

Whitehead Metals, Inc.
2128 Elmwood Avenue
Buffalo 7, New York

CHARLOTTE
Edgcomb Steel Co.
527 Atando Avenue
Charlotte 6, North Carolina

CHICAGO
Central Steel & Wire Co.
P. O. Box 5310-A
Chicago 80, Illinois

CINCINNATI
Williams & Co., Inc.
7640 Reinhold Drive
Cincinnati 37, Ohio

CLEVELAND
Williams & Co., Inc.
3700 Perkins Avenue
Cleveland 14, Ohio

COLUMBUS
Williams & Co., Inc.
900 Williams Avenue
Columbus 12, Ohio

DALLAS
Dealers Building Materials Co.
1303 Foch Street
Ft. Worth, Texas

DAYTON
Aluminum Materials, Inc.
2663 S. Dixie Avenue
Dayton 9, Ohio

EVANSVILLE
Ohio Valley Hardware Co., Inc.
1300 Pennsylvania Expressway, W.
Evansville, Indiana

FRESNO
Healey & Popovich
1703 Fulton Street
Fresno, California

HARTFORD
H. A. Leed Co.
1685 Dixwell Avenue
Hamden, Connecticut

HOUSTON
Metal Goods Corp.
P. O. Box 1452
Houston 1, Texas

LOS ANGELES
Ducommun Metals & Supply Co.
4890 S. Alameda Street
Los Angeles 54, California

Olympic Steel Prod. Co.
3304 Temple Street
Los Angeles 26, California

George D. Widman Co.
17823 Evelyn Avenue
Gardena, California

LOUISVILLE
Perry Lumber Co.
246 Walton Avenue
Lexington, Kentucky

MEMPHIS
Arkansas Foundry
1434 E. Sixth Street
Little Rock, Arkansas

MILWAUKEE
Wisconsin Bridge and Iron
5023 N. 35th Street
Milwaukee 9, Wisconsin

NEWARK
Chris Anderson Materials Corp.
577 Sayre Avenue
Perth Amboy, New Jersey

Beers Steel Bldg. Corp.
413 High Street
Elizabeth, New Jersey

NEW YORK
Long Island Tinsmith Supply Co.
111-12 Jamaica Street
Richmond Hill 18, New York

Whitehead Metals, Inc.
303 W. 10th Street
New York 14, New York

OGDEN
Superior Engineering Sales Co.
3185 Lincoln Avenue
Ogden, Utah

PHILADELPHIA
Edgcomb Steel Co.
D Street below Erie Avenue
Philadelphia 34, Pennsylvania

PHOENIX
Ducommun Metals & Supply Co.
301 South 26th Street
Phoenix, Arizona

Garland Steel Co.
1500 S. Seventh Street
Phoenix, Arizona

PITTSBURGH
Williams & Co., Inc.
901 Pennsylvania Avenue
Pittsburgh 33, Pennsylvania

PORTLAND
Pacific Metal Co.
303 N. W. Park Avenue
Portland 9, Oregon

RICHMOND
Roof Engineering Corp.
715 Matoka Street
Norfolk, Virginia

ST. LOUIS
Mississippi Valley Structural Steel
3117 Big Bend Boulevard
St. Louis 17, Missouri

SAN DIEGO
Ducommun Metals & Supply Co.
1300 Wilson Street
San Diego, California

SAN FRANCISCO
Aluminum Prod. Hawaii, Ltd.
669 Sheridan Street
Honolulu 14, Hawaii

The Brookman Co.
2833 Third Street
San Francisco 7, California

SEATTLE
F. T. Crowe & Co., Inc.
392 Second Avenue, W.
Seattle 4, Washington

Pacific Metal Co.
4151 First Avenue, S.
Seattle, Washington

TOLEDO
Williams & Co., Inc.
946 Kane Street
Toledo 12, Ohio

YORK
Union Roofing and Paper Company, Inc.
2200 Monroe Street
York, Pennsylvania

add lasting beauty to your buildings using Industrial Building Products with Alumalure finish made by

ALCOA ALUMINUM

ALUMINUM COMPANY OF AMERICA

New Detail Cuts Anchor-Bolt Cost

A new anchor-bolt system employs modern welding techniques and high-strength steel to save money and materials. Designer Archibald Johnston, Houston structural engineer, claims his assemblies can cut two-thirds the weight and one-third the cost of conventional anchor bolts resisting tensile loads ranging from 17,000 to 112,000 lb.

Major problems arising from the use of ordinary structural or intermediate-grade steel for tension-stressed anchor bolts are these:

- Long embedment required to develop bond stress of plain bars (4 ft. for a 1-in.-dia bar).
- Difficulty of threading deformed reinforcing bars, which increase bond strength and reduce required embedment.

Conventional methods of reducing plain bar embedment in concrete have serious defects. Providing a plate washer to bear against the concrete and reduce bond-strength requirements is satisfactory for small bolts. But under large plates, planes of weakness form in the concrete directly under the plate, owing to the difficulty of getting the larger concrete aggregates under the plate. Another disadvantage is that plates of 6 in. or larger may require widening the concrete pier to provide sufficient concrete cover.

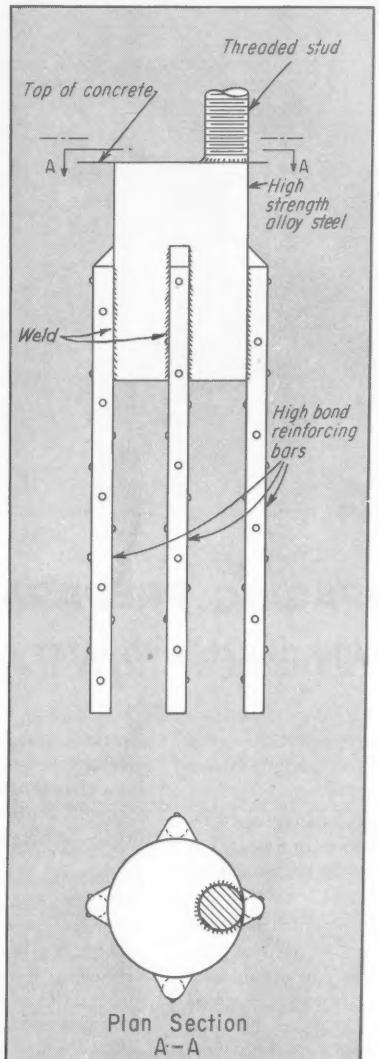
The other popular method of reducing plain bar embedment—providing a pipe-sleeve assembly—costs too much. Greater pipe perimeter furnishes extra bond surface. But the pipe, bar, nut and plate-washer assembly costs about 55-60% more than a bar, plate-washer combination with a sheet metal sleeve.

Mr. Johnston's solution is to make the bolt shank of weldable, alloy steel of 100,000 psi, or greater, yield strength. To the short shank of high-strength steel, he welds high-bond reinforcing bars to bond the assembbly to the concrete. The high-bond bars decrease by 55% the length requirements of plain bars of the same size. Moreover, the substitution of several bonding bars for a single bar reduces the steel weight required. Four bars furnish the same bonding perimeter as one bar weighing four times as much as the four smaller bars, but providing only the same bonding surface perimeter.

Mr. Johnston has also designed a detail to allow tolerance in setting anchor bolts for heavy machinery. The bolt shank and its welded anchors are set in the concrete with the bolt head flush with the concrete surface (See sketch). Workmen can skid the machine into position and shim it. Finally, threaded high tensile bolt shafts are stud-welded through bolt holes in the machine base to the top surface of the embedded bolt shank, which must be large enough to provide sufficient adjustment radius.

This method contrasts with the usual one of setting the anchor bolts in pipe sleeves, lifting the machinery over the projecting anchor bolts, and springing them into position to match the bolt holes in the machine base.

Patents on the system are pending. Mr. Johnston plans nationwide distribution of his anchors.



ANCHOR-BOLT ASSEMBLY allows tolerance for locating threaded stud.

Best Buy in Industrial Tanks Prestressed Concrete

★ Over 2000 Tanks In Service
★ Practically Maintenance Free
★ Competitive First Cost
★ Lowest Overall Cost
★ Standard Proven Designs

Send for Bulletin No. T-15

12—83,500 BBL Prestressed Concrete Fuel Tanks, Steel Lined. Each tank 122′ Diameter x 40′ High. Built 1959-1960 on West Coast for the Lark Corporation for use by an agency of the United States Government.

THE PRELOAD COMPANY, INC.
• 355 Lexington Ave., New York 17, N.Y.
Tel.: MU 7-0488
• 351 Jefferson, Dallas, Texas
Tel.: WHitehall 1-5707

PRELOAD CONCRETE STRUCTURES INC.
837 Old Country Road, Westbury, Long Island, N.Y.
Tel.: EDgewood 3-4040

HERRICK IRON WORKS
28400 Clawiter Road, Hayward, Calif.
Tel.: Lucerne 1-4451

THE CANADA GUNITE COMPANY, LTD.
125 Hymus Blvd., Pointe Claire, P.Q., Canada
Tel.: Oxford 5-6772

PRELOAD®

DOW | MATERIALS FOR MAINTENANCE

CUT RESURFACING PREPARATION COSTS

. . . renew bridge decks with latex modified mortar

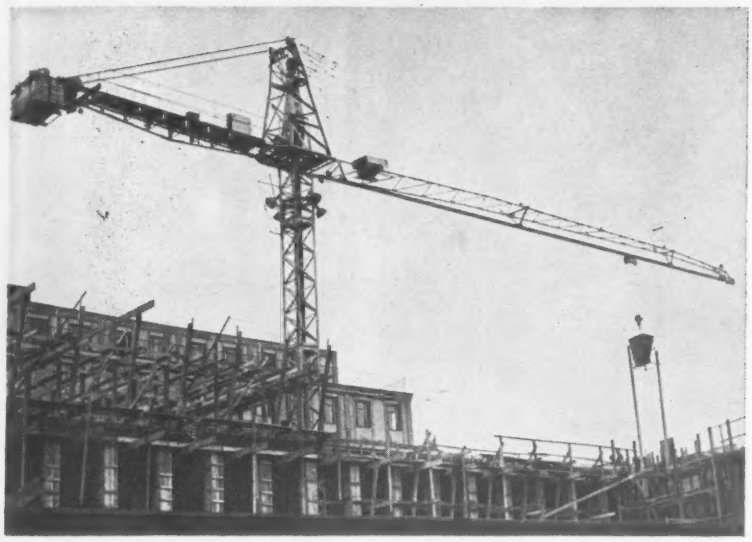
Here's how you can prepare and resurface structural concrete bridge decks in less time and at lower cost using portland cement mortar modified with Dow Latex 560.

Compare these savings. Conventional resurfacing methods require that you jackhammer out at least three to four inches of old concrete across the entire surface of the bridge and lay three to four inches of new concrete.

But when you're resurfacing with latex modified portland cement mortar, *only* the areas of actual failure need be jackhammered and sandblasted — and then only to a minimum depth of ½ inch, or to a depth sufficient to expose a sound concrete base. This thin layer of latex modified portland cement mortar has greater adhesion to substrate and produces a surface with greater flexural, tensile, compressive strength, greater resistance to water penetration, and higher freeze-thaw resistance than conventional concrete or asphalt resurfacing! It conforms to the expansion-contraction cycle of the original concrete, and reduces stress on the new surface.

Highway engineers, working with Dow research, have made field placements of latex modified mortar on bridges in Michigan, New York, Vermont, Texas, Ohio and several other states. For full information write for a technical report on how to apply latex modified portland cement mortar on structural concrete bridges and highways: THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1958LQ8-4.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN



Crane Stays on Top of the Job

The Linden climbing crane, designed for economical construction on all types of building projects, raises itself from floor to floor—through an elevator or stair shaft—to keep above the work as the job progresses.

It can also be rail-mounted for uses as a traveler crane around the perimeter of the job.

One man controls the Linden crane from the working level, with a 3½-lb control panel. This way he is free to move to any part of the job and assist with loading and unloading.

Boom radius varies from 66 to 100 ft, depending on which of four models is used. The D20 and D25 models will lift 3,300 lb at 66 ft and 2,200 lb at 82 ft; the F30 and F25 models will lift 3,300 lb at 99 ft or 4,400 lb at 82 ft.

Tower sections can be added to the crane mast as work progresses. In addition, the crane can be erected and mast sections added using its own power units. Assembly and dismantling is easy, the manufacturer says, since no unit in the assembly exceeds 2,000 lb.

Features of the climbing crane include a motor brake and speed guard, limit switch for highest load position, overload protection, outer and inner position limits for trolley carriage. Electrical power specifications can be varied as required by the purchaser. B. M. Heede, Inc., 30-01 37th Ave., Long Island City 1, N. Y.

Transmission Has Triple Purpose

Need for over-size and special-type motors and expensive starters is said to be eliminated by the Power-Max triple-purpose drive unit. The maker says the unit also protects the power unit and the driven mechanism.

Units combine an automatic clutch, adjustable torque selector, and variable starting time delay. They are available in sizes from 3 to 2,000-hp capacity, for use with electric or gasoline engine drives.

According to the maker, the centrifugally-operated clutch may be adjusted both for maximum torque transmitted and time delay in "picking up" the driven load. The manufacturer claims that with this unit, "starting load" is completely eliminated, even in applications normally having exceptional starting loads. Power requirements never exceed those of the normal running load.

Smooth starts and gradual acceleration, absorbing shocks, are listed among the advantages of the unit.

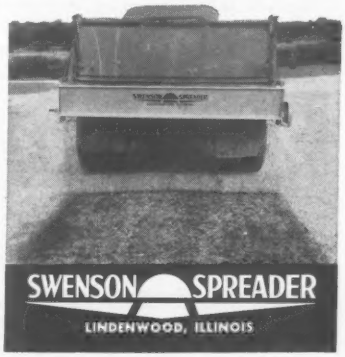
Power-Max is said to require no personal supervision, lubrication, adjustment or maintenance for the life of the friction materials used—estimated at over 30,000 starting cycles. Models are available for direct connection or V-belt or flat-belt drives. They can be provided with an integral brake drum or the motor can be reversed to act as a brake, without damage to the drive. Olme Precision, Inc., 393 Masonic Building, Portsmouth, Ohio.

SWENSON
the Summer-Winter Spreader...

U. S. Army Photograph

for resurfacing and ice control

Spread sand, gravel, salt, calcium chloride, cinders or any combination of these materials. Clutch-controlled from cab of truck. Any desired rate-of-flow. Steady or intermittent up to 30 M.P.H. Narrow strips or full traffic lanes. Forward or reverse. Models to fit any dump-truck box. Chain or hydraulic drive. Speed summer construction jobs, dust control, soil stabilization. Handle winter ice-control problems faster, safer, more efficiently. Write for complete information.



NOW...
CUT PLYWOOD FORM COSTS
WITH THOMPSON'S WATER SEAL

Note these cost-saving features:

- Prevents absorption of water in concrete forms. Forms last longer.
- Saves labor. Eliminates cost of cleaning, sanding and recoating after each pour.
- Thompson's Water Seal permits eight or more pours per plywood form (min. 4 pours per side).
- Eliminates form damage during stripping. Forms can't stick. Won't soften wood, prevents deflection.
- Easy to apply by brushing, dipping or spraying.

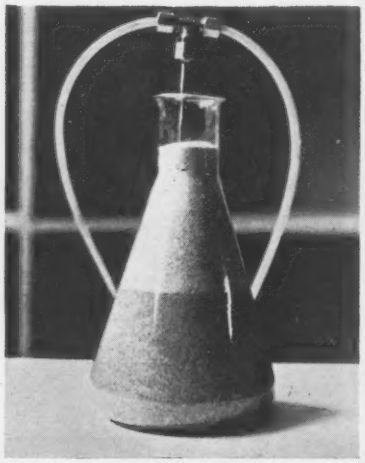
Thompson's Water Seal is deep penetrating, colorless, leaves no residue, won't stain concrete; surface is dust-free, ready for painting.

Available in 5 and 55 gallon drums from suppliers to the construction industry.

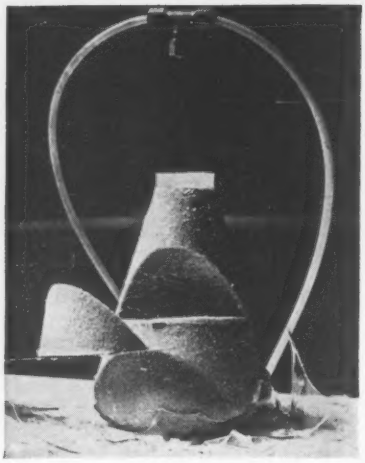
See catalog in Sweets Architectural file and Light Construction file.

Thompson's
MANUFACTURERS OF FINE PROTECTIVE CHEMICALS SINCE 1929
E. A. Thompson Co., Inc., Merchandise Mart, San Francisco 3, California

San Francisco, Los Angeles, San Diego, Portland, Chicago, Seattle, Denver, Dallas, Houston, St. Louis, St. Paul, Detroit, Philadelphia, New York City, Memphis, Tampa, Cleveland, Atlanta, Honolulu. Factory: King City, Calif. 5647R



Chemical grout added to dry sand . . .



. . . forms self-supporting mass.

New Chemical Solidifies Water

The science of chemically stabilizing soil has advanced another step with introduction of a chemical grout that turns water into a stiff gel.

Since 1954, the product designated AM-9 chemical grout has been field tested in oil wells, deep basements, tunnels, mine shafts, coffer dams, sewer pipe joints, caissons, and other types of excavation. It has been used alone or as a supplement to standard construction and grouting techniques.

Tests show that while cement fulfills most grouting requirements, there are instances when using chemical grout saves time and money, particularly when technical difficulties make conventional grouts ineffective.

At Rocky Reach Dam on the Columbia River, three different grouts were used to construct a curtain wall in the east bank. Cement clay and cement bentonite grouts were used first and as a final seal the low viscosity chemical grout was used to penetrate sand zones of low permeability.

The chemical grout is also effective for solidifying weak granular soil during tunneling operations, the sinking of caissons, and in many types of shafts and other excavations. Its use for increasing load-bearing characteristics of soil, however, is not recommended by the manufacturer.

The material, a water-soluble mixture of two organic chemicals, is available as a dry, white powder. An aqueous solution of the chemicals and a catalyst are mixed at or near the injection point in a fitting in which the solutions are separate until just prior to injection.

(*Turn the page*)

"NEW SIZE AND STRENGTH MARKINGS ON LACLEDE REINFORCING BARS

make them easy to identify . . . save time and construction costs."

Pick up any Laclede Multirib reinforcing bar. A rolled-in marking immediately tells you its size, strength and manufacturer. Laclede Multirib bars of high strength steel are rolled to conform to the two new ASTM standards: A-432 for 60,000 psi minimum yield point steel, and A-431 for 75,000 psi minimum yield. These bars can be used with assurance under the Ultimate Strength design methods included in the new A.C.I. building code. Bars of either 60,000 or 75,000 psi yield strength are identified by one and two longitudinal ribs, respectively.

These high-strength steels can contribute a saving of as much as 15% in the total construction cost of a concrete structure. The worker in the field can quickly find the right bar specified for the job; with the grade of steel well identified, many inspection and laboratory test charges may be eliminated.

For your next construction job, specify these time-saving, money-saving Laclede Multirib reinforcing bars.

6034

Steel

LACLEDE

LACLEDE STEEL COMPANY

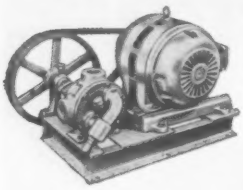
SAINT LOUIS, MISSOURI ◆ Producers of Steel for Industry and Construction

NOW...FOR GENERAL INDUSTRIAL USE

DEMING ROTARY PUMPS

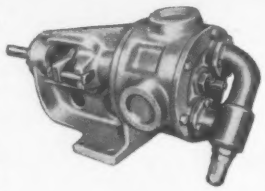
FOR HANDLING

SOLVENTS • FUEL OILS • LUBRICATING OILS • CHEMICALS • ALKALIES



The complete Deming Rotary Pump line is now available in sizes ranging from ⅜" through 8" for pressures to 200 lbs. and capacities to 1050 gallons per minute.

You'll want to know more about the Deming Rotary Pump line! Send today for complete descriptive literature.



The DEMING Co.

804 BROADWAY • SALEM, OHIO

Send me Literature on the Deming Rotary Pump Line.

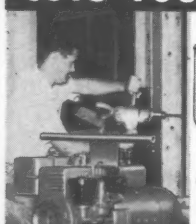
NAME_____

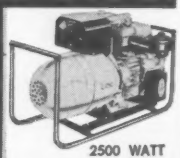
COMPANY_____ POSITION_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

PORTABLE POWER CUTS YOUR COSTS





2500 WATT

3500 WATT

Other Sizes—600 Watt to 100KW—All Voltages, Phases.

USE POWER TOOLS WITH DEPENDABLE

WINPOWER ELECTRIC PLANTS

You save 4 big ways with a WINPOWER electric plant:

(1) automatically idles plant when load is off . . . cuts fuel cost . . . lowers noise . . . extends engine life;
(2) costs less to buy . . . priced to beat all competition;
(3) speeds up production by supplying low cost, instant power on the job;
(4) gives you long and dependable service backed by 35 years of manufacturing experience. Portable cradle units or two wheel dolly types.

FREE BROCHURE AND COMPLETE INFORMATION SENT BY RETURN MAIL.

WINPOWER MFG. CO.

Dept. ENR NEWTON, IOWA

DRY DRY DRY DRY

—that's the word for dewatering by

GRIFFIN WELLPOINT CORP.

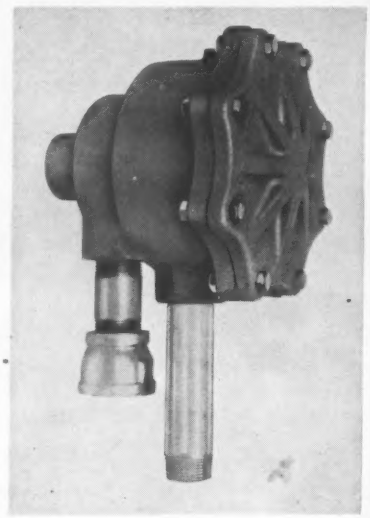
SALES • RENTAL • CONTRACT

881 E. 141st St., New York 54, N. Y.
Hammond, Ind. • Jacksonville, Fla.
Houston, Tex. • W. Palm Bch., Fla.

. . . New Products

The nonviscous solution is injected or percolated through the soil or rock, penetrating any formation through which water will flow. At a predetermined time, controlled by the catalyst used, the AM-9 solution solidifies to a rigid, continuous gel that seals voids, not only preventing the passage of water through the mass, but binding the particles together and increasing shear strength slightly.

Equipment for injecting the chemical grout includes two tanks containing the AM-9 and catalyst solutions, a dual pumping unit, and an injection point. A list of authorized contractors is available from the manufacturer. AMERICAN CYANAMID CO., COMMERCIAL DEVELOPMENT DIV., 30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.



Unit Clears Sediment Aids Irrigation Systems

A two-stage centrifugal load sediment separator is designed to remove sand, grit, pebbles or any sediment from water flowing under pressure. It may be used ahead of the pump to eliminate sand and grit and reduce wear on the seals and other parts.

The manufacturer recommends the unit for permanent underground or portable sprinkler irrigation systems. The separator is reported to be self-cleaning and non-clogging. Sediment is discharged into a trap that has a transparent pipe 1 in. x 6 in. for observing the discharge.

The separator is for use on ¾ in., 1 in., or 1¼ in. lines and has a capacity of 7 to 40 gpm. Larger sizes are being developed. RAIN JET CORP., 301 So. FLOWER ST., BURBANK, CALIF.

(*New Products continued* p. 60)

OZALID NEWSLETTER

NEW IDEAS TO HELP YOU WITH ENGINEERING REPRODUCTION AND DRAFTING

Get clean, sharp prints *fast* . . .
with high-speed 200 SS paper.

Want more readable reproduction directly from poor originals . . . with super speed, too?

"Doing the difficult immediately" is one phrase that aptly describes Ozalid's Blue Line 200 SS paper. Want multiple copies of semi-opaque documents . . . in a hurry? 200 SS paper will do the job with less machine speed adjustment . . . less chance of error! Stuck with an old, yellowed or soiled original that must be reproduced clearly, or a machine with a low-light source (ultraviolet or fluorescent)? 200 SS paper is the answer! In fact, this super-speed diazo paper gives you improved quality and faster printing speeds for a host of tiresome copying chores: letters, bulletins, announcements, mimeograph and offset printed bond papers . . . not merely faster but cleaner and more legible as well.

Reading the rocks at rocket rate

One outstanding example of Ozalid 200 SS paper's super-speed usefulness is in the field of geology . . . where, in the exploration for oil and gas, it has had an enthusiastic reception.

Today, internationally known companies like the Schlumberger Oil Well Survey Company are employed to read every rock formation, every stratum of sand or substance beneath the surface that tells them first *where* to drill, and later, in the drilling operation, *when* to stop. In these operations, recording machines based on the Oscillograph principle record sound and light waves on photographic paper or film. Geologists can then read and interpret these records, known as "well-logs," with a good measure of accuracy.

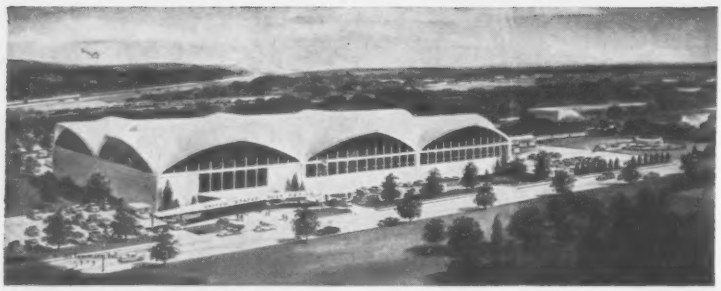
Since drilling operations run as high as $40,000 per day, speed of communication is understandably important. That's where Ozalid 200 SS comes in. As the "well-logs" are taken from the recording devices, they are immediately processed and dried in field trucks. Duplicates are made in seconds right on the trucks on Ozalid 200 SS using Bambinos and/or Ozamatics®, and then sped to geologists for interpretation. Copies are simultaneously dispatched to drilling contractors and well owners. Thus 200 SS shortens the critical . . . and expensive . . . time interval between the recording of well pressures and the geologists' "make or break" decisions.

All this . . . and economy, too!

Naturally you'd expect that with all the outstanding benefits Ozalid 200 SS can give you, the cost would be a little higher. Not the case at all. It actually costs no more—and you save in *many* other ways as well. We'd like to quote from a truly unsolicited testimonial letter received from Mr. R. C. Purvayn, Purchasing Agent for Packaging Corporation of America: "We have found this paper to be of a nature that we can take letters, customer orders, etc., and run them on our Ozalid machine without the use of any type of masters. We have recently discontinued in a large measure the use of our (COMPETITIVE NAME DELETED) paper which costs us in the neighborhood of four and one-half cents per copy. Another added benefit with your 200 SS paper is that in filing we incur no wrinkling problem which has been a troublesome factor . . . we appreciate the savings which we have made with the use of your 200 SS paper . . . ."

To sum it all up, Ozalid's Blue Line formula 200 SS paper facilitates higher printing speeds plus better image density for easiest reading . . . means time and money savings for you. If you'd like a convincing demonstration, may we suggest that you contact your Ozalid representative? He'll be happy to oblige . . . without obligation.

Ozalid, *Johnson City, New York. A Division of General Aniline & Film Corp.*



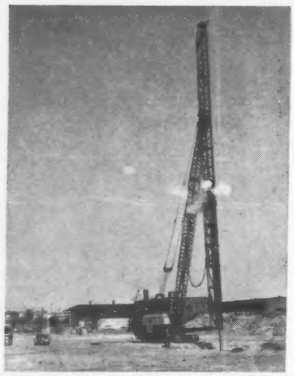
WORLD'S FIRST

Mechanized Post Office Supported On COBI PILES DRIVEN BY C. L. Guild

THE world's first fully-mechanized post office building is under construction at Providence, Rhode Island. Cost of the structure—$20,000,000.

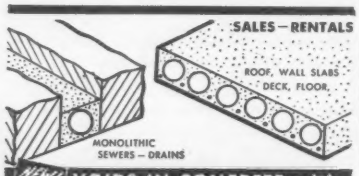
When borings indicated a loosely deposited silt throughout the area, the prime contractor —Gilbane Building Company—called upon C. L. Guild Construction Co., Inc. to furnish and drive the cast-in-place piles specified in the design.

Guild completed the pile work in 36 days—driving 1017 Cobi piles. Lengths varied from 55 to 70 feet. Whatever or wherever your pile driving requirements, call Guild. Guild has the experience, personnel, and equipment and will welcome the opportunity to put this successful combination to work for you.



This is one of Guild's Lima pile driving rigs. The boom is 85 feet and length of leads 128 feet.

C. L. GUILD CONSTRUCTION CO., INC.
90 Water Street, East Providence 14, R. I.
BOSTON, MASS. SYRACUSE, N. Y. WASHINGTON, D. C. ATLANTA, GA. HOUSTON, TEXAS KANSAS CITY, MO.

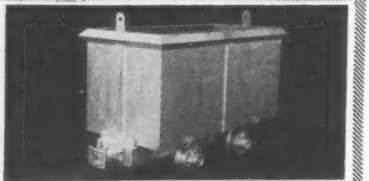


NEW! VOIDS IN CONCRETE with ELGOOD INFLATABLE VOID FORMS

REUSABLE RUBBER VOID FORMS FOR SEWERS, SLABS, DRAINS & DUCTS. SUPERSEDES ALL VOID FORMING TECHNIQUES.

- ALL DIAMETERS ¾" TO 120"
- GUARANTEE MINIMUM OF 100 USES Field experience, 250-3000 uses
- STAFF AVAILABLE FOR SPECIALIZED PROBLEMS

ELGOOD CONCRETE FORMS CORP.
378 TEN EYCK ST., BROOKLYN, N.Y. HY 7-5445



PRACTICAL, RUGGED MINE CARS

Side Dump and Rocker Dump cars, 24" gage. Tunnel cars, 18" and 24" gage. Various capacities. Ask for Bulletin No. 18.

MAYO
TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

Remote Water, Gas Meters Save Meter-Reader Steps

A simple device is designed to mak it possible for employees of water an gas companies to read meters withou entering the homes of customers.

The remote recording and tabulato unit is called a Visi-Meter and can b attached to the outside of a building The unit has seven digits. It is enclose in a waterproof case. A cable extendin from the recording and tabulator uni can be attached to either a water or ga meter. Entire device is self-lubricating

Rustproof, and waterproof models ar available. The equipment is designed t fit any make or model gas or water mete and can easily be adapted to industria or commercial use. Two men take abou 30 minutes to install it, the manufac turer claims. One man handles the out side installation while the other make the necessary connections to the utilit lines in the house.

Rock Falls, Ill., a city of about 10,00 people, is the first U. S. city to instal the remote registry system in home served by the city water system; 64 othe cities in this country and abroad ar either testing the unit or planning t install it. VISI-METER, INC., 301 NORT 17TH ST., KANSAS CITY, KANS.

Sewage Pumping Station Is Factory-Assembled

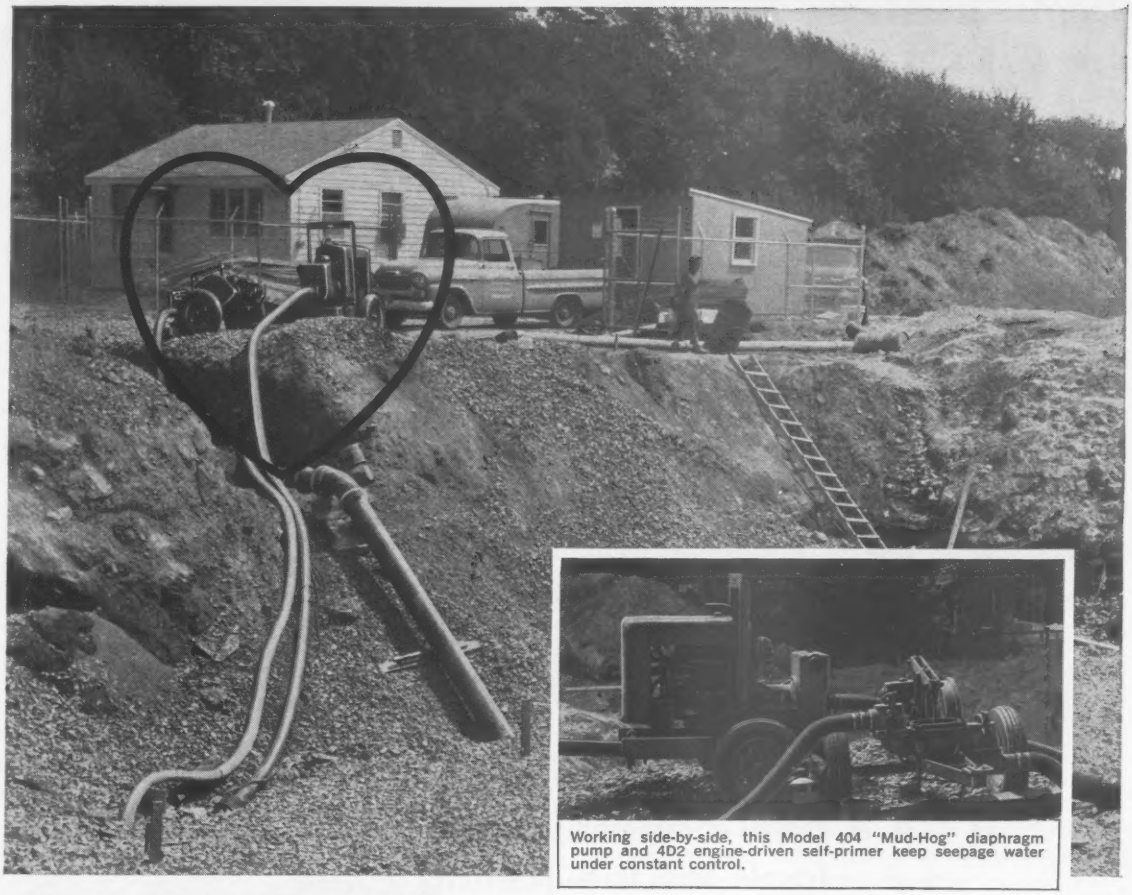
A prefabricated, welded-steel sewag pumping station incorporates eithe pneumatic sewage ejectors or standar sewage pumps. The stations are fab ricated of $\frac{3}{8}$-in. steel for the wall sec tions and $\frac{5}{8}$ in. for top and botton plates. Complete stations include ac cess ladders, hinged doors, lights, de humidifier, blower and sump pump.

The ejector stations use cast iron pots with either electrode or pneumati cally operated liquid-level controls. The cast iron pots permit use of any one o three different types of control systems Welded-steel ejector electrode control led pots are integrally fabricated with the steel shell of the station in either single or duplex types. Separate air receivers are utilized when required.

Pumping stations incorporate vertical centrifugal pumps having gland seal and bubbler-type control systems for the adjacent wet well.

The station walls are coated with epoxy-resin type coatings. Special elec tric control panels, completely wired at the plant, spring-loaded check valves and inlet and discharge pipe connec tions extending outside are standard items. KOMLINE-SANDERSON ENGINEER ING CORP., PEAPACK, N. J.

The **HEART** *of seepage water control is the* **PUMP** *on the job!*



Working side-by-side, this Model 404 "Mud-Hog" diaphragm pump and 4D2 engine-driven self-primer keep seepage water under constant control.

MARLOWS *Pump "Round the Clock" On Flood Control Project!*

The firm of Paino & LaCava is currently working on a $750,000 "Spot Brook Flood Control" project in Malden and Melrose, Mass. The project calls for building 4,500 feet of open cut area and 1,100 feet of culvert. The open cuts are 40 feet wide at the bottom, 8 to 15 feet deep and 80 feet across at the top. The bottom of the cut was lined with tunnel spoil and then concrete was poured along the sides and the base.

To control seepage water rising up under the lining of spoil and make it possible to pour the concrete, three Marlow pumps were placed in 24-hour service. Two of them were 404 "Mud-Hog" diaphragm pumps and the third unit, a 4D2 self-priming, engine-driven pump, was only used when rain and run-off added to the seepage water problem. The pumps were run 24 hours a day — for eight months — without interruption! Jim Dolan, Project Superintendent, in the construction business all his life, best expressed Marlow dependability when he said *"These Marlows were the best pumps I ever used!"*

If water's a problem on your next construction job, let Marlow help you solve it. Marlow makes a complete range of AGC rated self-priming and diaphragm pumps. Write today for Bulletin C-09 and the name of your Marlow delaer.

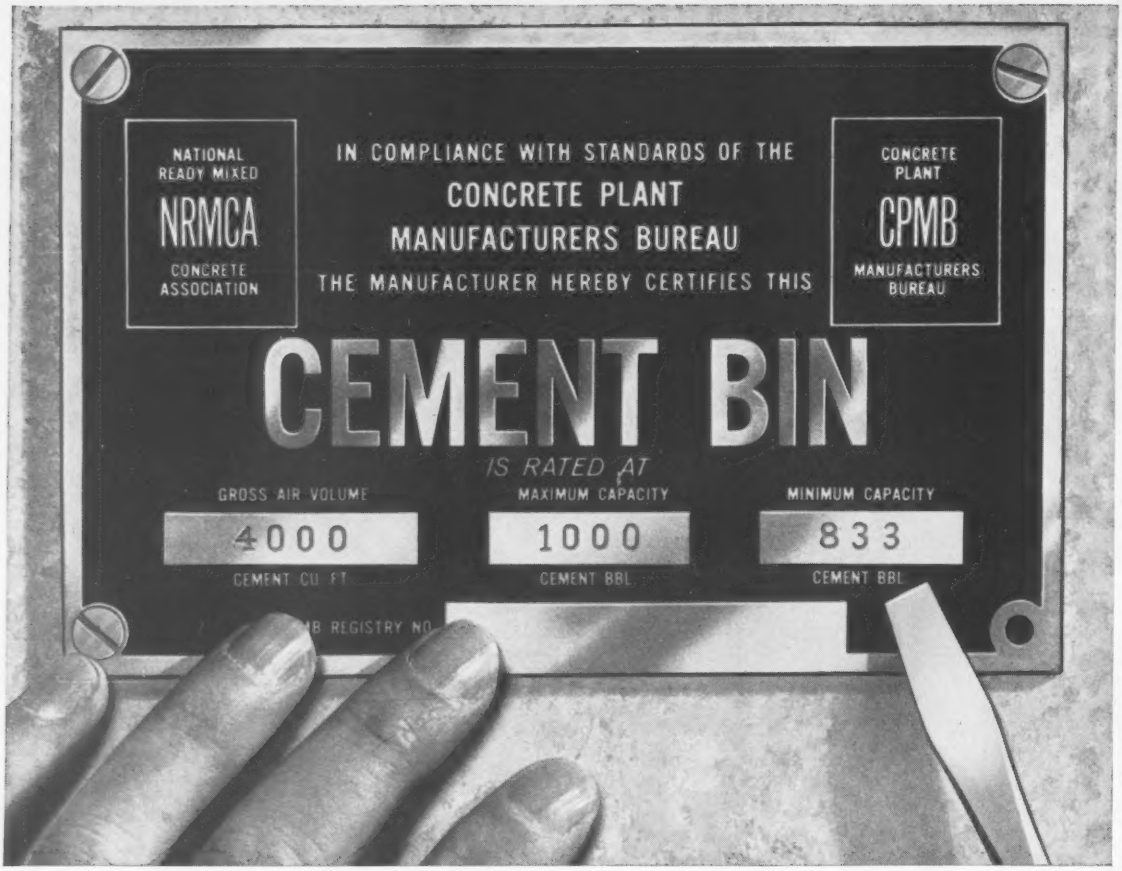
Marlow PUMPS ®

MARLOW PUMPS

Division of Bell & Gossett Company

MIDLAND PARK, NEW JERSEY 0-102

Longview, Texas • Morton Grove, Illinois



If it's a new concrete plant component, look for the Rating Plate

Rating plates have been established by the Concrete Plant Manufacturers Bureau for a simple purpose — to certify compliance with a code of standards which benefits all producers and users of quality concrete.

The standards behind these Rating Plates have been developed by the cooperative effort of the country's leading plant builders and are the product of their combined experience. Together, the member companies of the Bureau represent a total of 229 years during which they have steadily improved the design, construction and operational efficiency of plant equipment.

The standards developed from this experience have been approved by the Board of Directors of the National Ready Mixed Concrete Association. They accomplish the following:

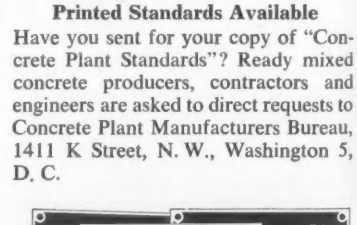
- **Establish proper capacity ratings for concrete plant components.**
- **Define the bases on which capacities and classifications of types are determined.**
- **Establish a uniform nomenclature for the industry.**
- **Provide the Rating Plate, now permanently affixed to each component, which certifies its capacity and compliance.**

These components are now rated: Batchers for aggregate, cement, and water; bins and silos for aggregate and cement; conveyors and elevators for aggregate and cement, and combinations of the above.

Rating plates — small in size, big in significance — are now affixed to all new equipment being shipped by member companies which is in compliance with Concrete Plant Manufacturers Bureau standards.

Printed Standards Available

Have you sent for your copy of "Concrete Plant Standards"? Ready mixed concrete producers, contractors and engineers are asked to direct requests to Concrete Plant Manufacturers Bureau, 1411 K Street, N. W., Washington 5, D. C.



CONCRETE PLANT MANUFACTURERS BUREAU (CPMB)

An affiliate of the National Ready Mixed Concrete Association

BLAW-KNOX COMPANY
Pittsburgh, Pa.

BUTLER BIN COMPANY
Waukesha, Wis.

CHAIN BELT COMPANY
Milwaukee, Wis.

ERIE STRAYER COMPANY
Erie, Pa.

THE HELTZEL STEEL FORM AND IRON COMPANY
Warren, Ohio

THE C. S. JOHNSON COMPANY
Champaign, Ill.

NOBLE COMPANY
Oakland, Calif.

Men and Jobs

Public Works

The year's reassignment of top Air Force Civil Engineers begins with 11 Colonels moving and one retiring. Moving to new jobs are:

Col. A. M. Davis from Headquarters, U. S. Air Force in Europe, Civil Engineer, to 17th Air Force headquarters, as Civil Engineer.

Col. A. M. Morrison, from Civil Engineer at 17th Air Force to Ankara, Turkey as Air Division Civil Engineer.

Col. E. V. N. Schuyler, from Deputy Director of Facilities Support, Directorate of Civil Engineering, Hq USAF, to the Joint Chiefs of Staff Central Control Group, Logistics Directorate, J-4, as a member of the Installations Branch, Requirements and Capabilities Division.

Col. D. H. Miller, from the Joint Chiefs of Staff Installations Branch, to the Office of the Deputy Chief of Staff for Development, Hq USAF.

Col. J. W. Smith, from Deputy Assistant Chief of Staff for Installations, 3rd Air Force, to Lackland AFB, Tex., as Civil Engineer.

Col. J. S. Caples, Missouri River Regional Civil Engineer to Allied Air Forces, Central Europe, as Civil Engineer.

Col. R. H. Cipolla, New England Regional Civil Engineer to Omaha, Neb., as Missouri River Regional Civil Engineer.

Col. Ralph Canter, Deputy Missouri River Regional Civil Engineer, to Norton AFB, Calif., as San Bernardino Air Material Civil Engineer.

Col. E. J. Fletcher remains in the Directorate of Civil Engineering Hq USAF, but has moved from Assistant Deputy Director for Facilities support to Chief of the Construction Division, Deputy Directorate for Construction.

Col. C. E. Gill, Southeast Regional Civil Engineer to San Francisco, to become the South Pacific Regional Engineer.

Col. H. D. Forbes Civil Engineer at Eastern Air Defense Force will move to Amarillo AFB, Tex., to be the Civil Engineer.

Recently retired is **Col. Leroy Bartlett,** Deputy South Pacific Regional Civil Engineer.

Edmund B. Raff, a Lansing road contractor, has been elected chairman of the Michigan State Highway Department's Industry Advisory Committee.

Guenthar G. Rahm has been appointed chief of the Colorado public works section to succeed the late Otto H. Hall. Mr. Rahm has been building construction and maintenance engineer in the State Planning Division since 1958.

6,000 FEET OF HOUSE FOOTINGS A DAY!

THIS CLEVELAND J TRENCHER is cutting 12-inch wide by 12-inch deep trench for house footings in sand, rock and adobe, averaging 6,000 feet of smooth, clean trench every 8-hour work day. "The Cleveland J-20 digs footings faster than any trencher I've ever used," says contractor Frank Arcerio, president of the Montebello Trenching Co. His J-20 is digging 60,000 feet of trench for a large housing development in Palos Verdes, California.

The Cleveland J-20 is an ideal trencher not only for footings but also for mains and house services for all utilities lines—for all types of city and suburban trenching jobs. Only 60 inches wide and extremely maneuverable, it works easily in tightest quarters, sneaks by obstructions, digs as close as 18 inches to parallel walls and fences. It's easy on lawns, sidewalks and blacktop, too and easy to move from job to job at safe truck speeds.

THE J-20 HAS THE FEATURES THAT MEAN

More Trench... in More Places... at Less Cost

- 100% control at operator location
- hydraulically shifted conveyor
- pulley-enclosed dual conveyor drive
- world's finest trencher crawlers
- 1,000-hour track lubrication
- digs 12-24" wide to 5½' deep
- 33 positive digging speeds
- optional hydraulic crumbing shoe

Check with your distributor now... get the complete J-20 story

The CLEVELAND TRENCHER Co.

20100 ST. CLAIR AVE. • CLEVELAND 17, OHIO

Good Everywhere

Cable Road School, Lima, Ohio • Architects: Strong, Strong & Strong • Contractors: Stedke Construction Company • Products: Truscon "O-T" Steel Joist, Truscon Aluminum Projected Windows and Screens, Truscon Welded Wire Fabric.

Cable Road School, Lima, Ohio . . . designed and built with **TRUSCON "O-T" OPEN TRUSS STEEL JOIST** and Aluminum Projected Windows and Screens

Smart, new, modern. That's the Cable Road School, Lima, Ohio, designed and built with the newly designed Truscon "O-T" Open Truss Steel Joist and Truscon Aluminum Projected Windows and Screens.

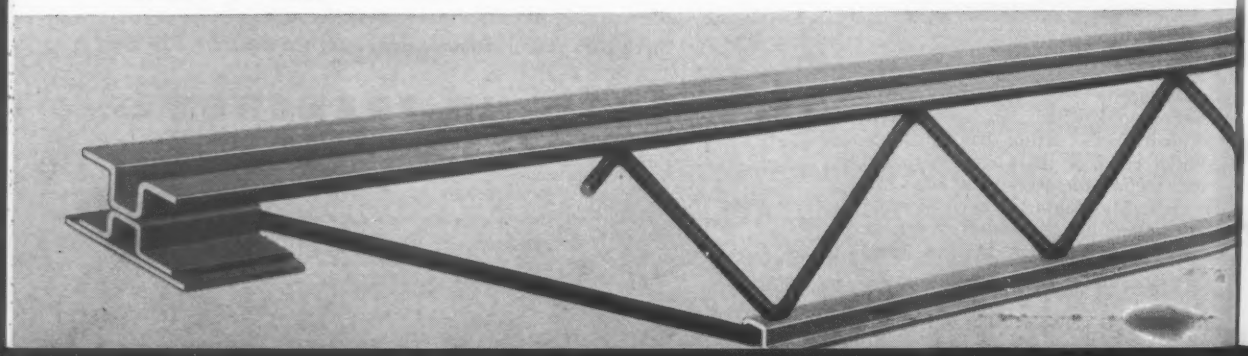
Truscon "O-T" Series "S" (shortspan) Steel Joist meets the requirements of modern architecture, designed to 20,000 psi working stress. Balance design—in balance with all other structural elements.

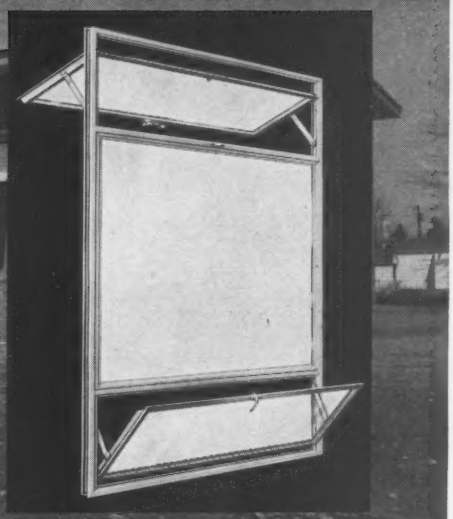
Truscon continues to exceed the rigid standards of the Steel Joist Institute Quality Verification Program—your assurance of predictable, dependable load-bearing.

In producing and marketing newly designed "O-T" Open Truss Steel Joist, Truscon continues to exceed the rigid standards of the Steel Joist Institute Quality Verification Program—your assurance of predictable, dependable load-bearing.

Truscon Aluminum Projected Windows and Screens are designed for maximum sunshine and fresh air. Ventilators tilt for in-and-out air flow without drafts. Truscon Aluminum Windows are quality constructed throughout, economically priced. Offer unlimited versatility in design and application.

Incorporate Truscon "O-T" Steel Joist and Truscon Aluminum Projected Windows into your next set of plans. To learn more about the advantages and economies of Truscon steel and aluminum building products, call your Republic representative, or, send coupon for specifications and design data.





REPUBLIC PERSONAL STORAGE AND WAREHOUSE CABINETS meet every school, every administrative office need. Big and roomy, ideal for storing week-to-week school supplies for efficient classroom operations —with facilities for instructor wardrobe conveniences. Select from a wide range of sizes and styles, in six attractive colors. Send for catalog.

REPUBLIC STEEL LOCKERS are designed and built for maximum school operating efficiency and economy. Smart styling and design are combined with strong, sturdy, steel construction for easy installation, long life, and low maintenance. Full inside locker roominess, ventilation, safety. Bonderized. Available in many sizes, colors, locking systems. And, Republic offers complete locker planning and installation service. Write for information.

REPUBLIC ELECTRUNITE STAINLESS STEEL TUBING for structural applications is a practical building product for modern school construction. Both decorative and functional with unlimited freedom in design. Left, ELECTRUNITE Stainless Steel Tubing, 2″ x 2″ and 1¼″ x 1¼″ squares, was used for handrails and Newell Posts. To learn more about the advantages of Republic ELECTRUNITE Tubing, both stainless and carbon steels, send for Brochure SA-STR-60.

REPUBLIC STEEL

REPUBLIC STEEL

World's Widest Range of Standard Steels and Steel Products

REPUBLIC STEEL CORPORATION
DEPT. EN-9801
1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on the following products:

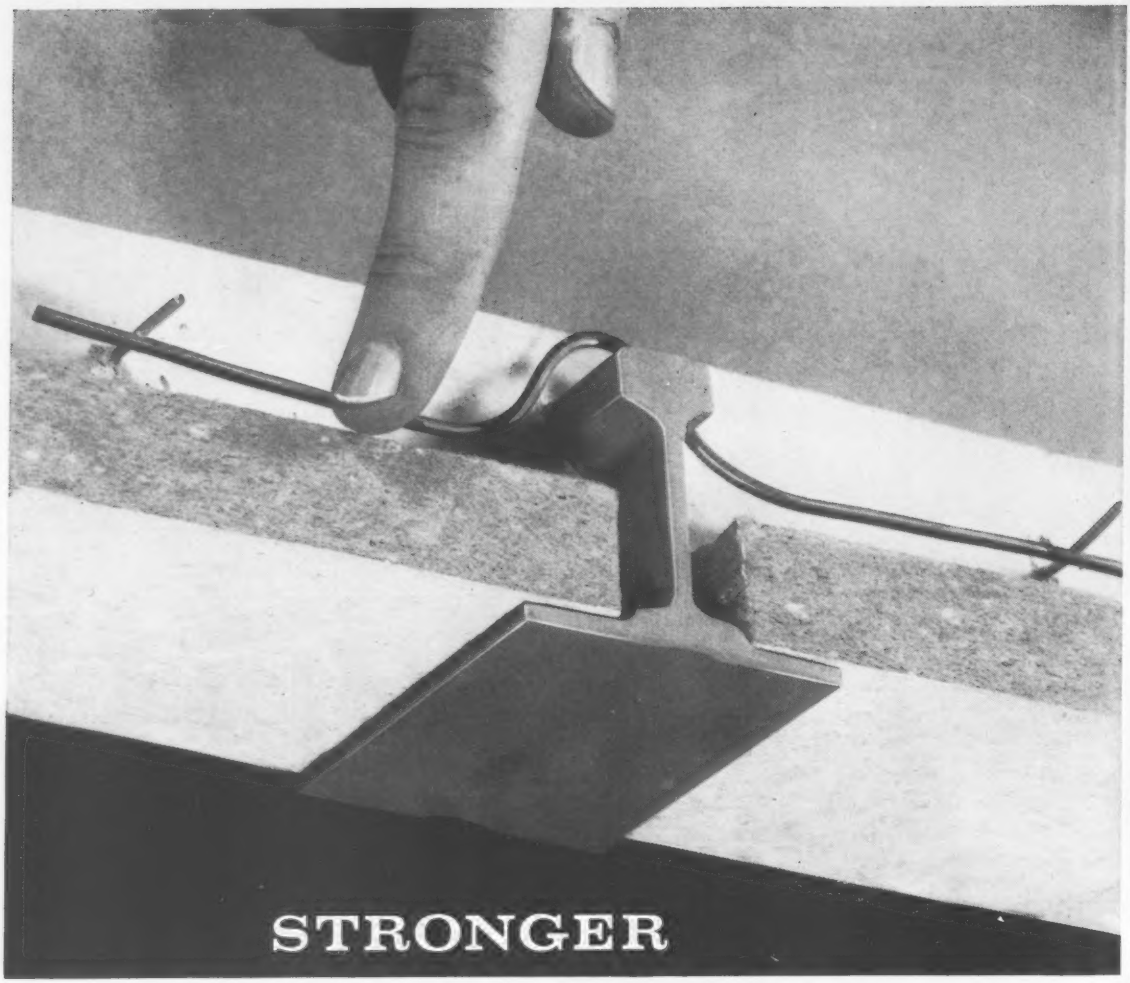
- ☐ Truscon "O-T" Open Truss® Steel Joist, Series "S"
- ☐ Truscon Aluminum Projected Windows and Screens
- ☐ Republic Personal Storage and Wardrobe Cabinets
- ☐ Republic Steel Lockers ☐ Locker Planning Service
- ☐ ELECTRUNITE® Structural Tubing Brochure SA-STR-60

Name_____ Title_____

Firm_____

Address_____

City_____ Zone____ State_____



NEW FIRE-FIGHTER FORMBOARD

for poured gypsum roof decks!

1 It's a *really strong* mineral fibre formboard with a Class A fire rating.

2 It allows single pouring, as recommended by ASA and ASTM. Makes a monolithic slab of rock and becomes an integral part of the building.

3 Rugged enough to be applied in main purlin lengths — no need for cross tees.

4 Insulation value (U) of .22 and light reflectance value of .75.

5 Can be used directly on bar joists without sub-purlins where spacing is not over 36″ o. c.

New Fire-Fighter Formboard has a nominal ¾″ thickness, comes 24″ or 32″ wide. See your Gold Bond® Representative for the complete list of advantages, or write Dept. EN-860 for free samples and technical details.

NATIONAL GYPSUM COMPANY, BUFFALO 13, NEW YORK

a step ahead of tomorrow

Gold Bond
BUILDING PRODUCTS

Sludge Lagoon for Philadelphia

Contractor must maintain earth-fill dike for one year, do no work on it during freezing weather

A fifth sludge lagoon will be added at the Southwest sewage treatment works in Philadelphia, at a cost of $207,595. The city's award to State Paving & Construction Co., Philadelphia, was 7.7% under the engineer's estimate. Samuel S. Baxter is commissioner of the city's Water Department.

Work consists of furnishing, placing and compacting approved fill for the construction of earth-fill dikes for the 2,400x350x16 ft basin; erecting new and relocating existing chain link fence; constructing reinforced concrete intake box with wood walkway; cast iron and aluminum mechanical piping; reinforced piers for cast iron pipe; connections to existing work; and other related work and appurtenances.

No dike construction will be allowed during freezing weather. The contractor must maintain the dikes for one year after completion, and fill and compact any irregularities in the top and sides of the embankment due to erosion or any other causes. He is also required to do all necessary pumping and dewatering of the work areas, the cost to be included in the unit price of excavation.

Existing sludge and supernatant drainage pipe lines must be maintained in service, with interruption only for connections to new pipe, the contractor to give a week's advance written notice so arrangements can be made for interruptions in pumping while such connections are being made.

All concrete must be vibrated and made with portland cement conforming to Federal specifications SS-C-192 or current ASTM standards C-150.

All cast iron pipe, fittings and special casting must be made with mechanical joint, flanged, or plain ends, or victaulic-type grooved ends, and must be coated at the foundry, inside and outside, with standard coal pitch varnish.

Aluminum alloy pipe and fittings must conform to ASTM specifications B-241-59T, with chemical requirements GS10A T 56.

The contractor must furnish all materials.

Minimum prevailing wages include: carpenter, $3.935; crane and shovel operators, $4.415; bulldozer operator, D-7 or equivalent, $3.965; common laborers, $2.50.

The bidding included:

1C	State Paving & Constr. Co., Phila.			$207,595
2	Glasgow, Inc., Glenside, Pa.			209,925
6	Carl E. Widdell & Son, Merchantville, N. J.			263,447
EE	Water Dept., Phila.			225,000

Bids: 6-2-60 Items	Unit	Quantity	Unit Prices 1C	2
Exc, uncl, incl bkfl, grading along fence line remove & dispose	cy	3,200	$1.50	$2.50
Reinf conc intake box w wood walkway & stop logs, construct	ls	job	5,900	1,500
Earth fill dikes, constr for sludge lagoon, incl f&p approved earth fill & compaction	cy	59,000	1.95	2.31
Chain link fence, 8' high, plus 3 str of brb wire, furn & erect new	lf	1,350	7.41	7.00
remov existing & erect in new location	lf	2,800	3.46	3.50
Conc, cl 20-1 curbs & fndns for all fence posts f&p	cy	90	54.24	40.00
RCP, 12", incl conc cradle under pipe f&i	lf	36	7.00	10.00
Cmt sand grt mix, 1:8, under pressure, to fill existing 24" conc dr pipe lines under 4 exist lagoons & at 2 different locations f&p	cy	155	38.00	65.00
CIP, cl 150 mech jt flanged & victaulic tp grooved end pipe, 8" & 12" f&i	ls	job	33,330	18,500
Alu n alloy pipe, 8", & fttgs w grooved ends for vict type couplings, couplings, gaskets, bolts, nuts, etc. f&i	ls	job	17,800	12,350

f&i: Furnish & instal f&p: Furnish & place

Completion schedule: 150 working days

Pools-Bathhouse Cost Averages $10.74/sq ft

The contractor has 400 calendar days in which to complete construction of an L-shaped poured concrete swimming pool, decks, wading and junior pools and a bathhouse, complete with filters, for Cedar Falls, Iowa. Larkin & Associates, Kansas City, Mo., is the architect.

The city's award at $176,130 to John G. Miller Construction Co., Waterloo, Iowa, was 2% under the engineers estimate.

Area of the main pool is 11,425 sq ft, and of the wading and junior pools, 1,575 sq ft. The brick and tile bathhouse has an area of 3,400 sq ft. Total area of pools and bathhouse is 16,400 sq ft, which averages an overall cost of $10.74 per sq ft.

Concrete must attain a compressive strength of 3,500 psi at 28 days, and must contain a minimum of 5½ sacks of concrete per cu yd.

Cast iron pipe is class 150.

Bids were taken in March, work was scheduled to start in 60 days, and liquidated damages are $25/day.

Use

HORNOLITH

it's the **EASIEST**

way to make a concrete floor harder

Hornolith gives unpainted concrete floors flint-like surfaces that resist dusting, abrasion and the deteriorating effects of moisture, chemicals and oils. Hornolith's powerful wetting agents actually reduce the concrete's surface tension, enabling Hornolith chemicals to penetrate and saturate. It complies with Federal Job Specification for magnesium and zinc fluosilicate floor hardeners. A chemical reaction binds the fine sand and cement particles into a tight mass. One gallon covers approximately 100 sq. ft.

For details on Hornolith and the complete line of Horn floor hardeners, write Dept. ENR-46.

A. C. HORN COMPANIES

Subsidiaries & Divisions

SUN CHEMICAL CORPORATION

750 Third Avenue, New York 17, N. Y.

Plants in Long Island City • Chicago • Houston • Los Angeles • San Francisco • Portland, Ore. • Toronto • Sales Offices and Warehouses throughout the United States and Canada.

Materials Prices

Monthly Market Quotations by ENR Field Reporters

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in.* truckload		CONCRETE Ready Mixed 1:2:4 del. per cy
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 cy & over
Atlanta	$4.38a‡	$3.88a†	$3.68a‡	$3.10a‡	$3.10a‡	$1.85‡a	$2.18a	$2.33a	$1.65r	$1.75r	$0.175o	$0.21o	$13 75g
Baltimore	4.42a	3.91a	3.56a	2 80‡a	2.80‡a	2.25‡a	2.85‡a	2.90‡a	2.05‡a	2.00‡a	.18a	.18a	13.50ou
Birmingham	4.43c	3.50cf	....	2.53ns	2.53ns	2.13ns	2.75s	2.75s	1.65d	1.75d	.19	.19	14.25q
Boston	5.83ip	4.52ap	4.90imp	3.00qsz	3.00qsz	3.00qsz	1.75qsz	1.85qsz	....	....	.23o	275ao	15.00q
Chicago	4.52ag	4.02ag	4.15g	3.78‡e	3.78‡be	4.13‡be	3.95‡be	3.95‡be	2.25‡s	2.25‡s	.26‡s	261be	13.50e
Cincinnati	4.84c	4 34c	4.31c	2.20‡cu	2.34‡cu	2.44‡cu	2.55‡cu	2.74‡cu	1.80u	1.80u	.19o	25ao	15.00qr
Cleveland	4.77/.84‡	....	4.19‡ae	....	2.25ae	1.75ae	2.70fy	2.70fy	2.20‡f	2.20‡f	....	23 f	17 25u
Dallas	3 65s	3.25s	3.53s	2.65‡s	2.75‡s	1.90‡	2.47	2.67	....	....	....	.285	12.10x
Denver	4.89s	4.39s	4.89	1 95‡	2 15‡	1.42‡b	....	3 00‡r	....	....	25	.27ao	11.90
Detroit	4.50a	3.89agg	3.97a	2 50cc	2 50cc	2.16cc	2.80ddbm	2.80ddbm	3.15ddaa	3.50ddaqaa	24u	27‡au	15.50eaa
Kansas City	4.52a	3.92a	4.30a	....	....	1.85‡a	2.00‡a	2.00‡a	....	....	22a	.26c	14.50
Los Angeles‡‡	5.12ch	4.65ch	5.60c	2.50‡at	2.76‡at	2.41‡at	2.41‡at	2.46‡at	....	....	255f	385	12 48hlz
Minneapolis	4.66a	4.15a	4.25a	2.70‡ae	2.70‡ae	1.60‡ae	3.95‡ae	3.95‡ae	....	....	20q	....	14.20f
Montreal	3.36‡de†	3.11‡de†	3.72‡de†	1.90‡a†	2.15‡a†	2.40‡a	1.90††	2.15††	2.00†	2.00†	20†	.28††	10 80ek†
New Orleans	4.17b	3.65b	3.97b	2.61b	2.61b	2.16b	....	....	1.65d	1.75d	.25r	.25	14.00o
New York	4.68a	4.18a	3.75a	....	3.20bk	2.30bkw	2.29bbb	2.29bbb	....	....	.265nwo	.32bwo	17.60ay
Philadelphia	4.40‡ae	3.99‡ae	3.51‡e	1.95‡a	1.95‡a	1.55‡a	2.00‡a	2.30‡a	2.25‡s	2.25‡s	....	.225	13 90z
Pittsburgh	5.655jk	4.62bf	5.00bjl	2.68‡aqv	2.68‡aqv	3.08‡aqv	2.00‡aqv	2.00‡aqv	2.10w	2.10w	.22rz	.22rz	16.15e
St. Louis‡‡	4.54a	4.04a	4.24a	3.40‡as	3.40‡as	2 40/3.40‡as	1.75fs	1.75fs	....	....	.26 t	.32 t	13.65/14.10q
San Francisco	4.34c	3.79c	4.75c	2.02	2.02	2.12	2.17	2.17	....	....	.24	.28 t	13.00cw
Seattle	4.47‡s	3 75aq	4.65a	4.25‡bm	4.25‡bm	4.25‡bm	4 50‡bm	4.50‡bm	....	....	.288s	.384cs	14.70f
Toronto	5.20i	3.84i	5.20i	2.40	2.40	2.05	2.40	2.40	2.40	2 40	.26	.285ci	13.75q

‡ Delivered. * Prices incl. dealers discount except as noted. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised . † Plus 6% Mun & Prov tax.

CEMENT: *a Less 10¢ disc. 15 days. *b Less 2% disc. 15 days. *c Less 10¢ disc. 10 days. *d 10¢ disc. 20 days. *e Truckload lots. *f Fob mill, add $14.58 to $21.31 per car switching charges. *g fob mill + freight. *h LCL. *i Less 2% disc. 10 days. *j Truck lots, fob yard. *k 100 bag lots *l over 150 sacks. *m Sold in bags only. *n Less 5% disc. 30 days. *o Plus 50¢ for Sat. del. *p 5-8 ton truckload. *q F.o.b. mill *s In bags & bbl. Only *t min. 7 tons

SAND, GRAVEL, STONE & SLAG: *a Truck lots. *b Per cu. yd. *c 5 tons up. *d Less 5¢ disc. 10 days. *e Less 2% disc. 10th. *f Less 2% disc. 15th. *g Less 5% for cash. *h Less than 5 tons. *j F.o.b. quarry. *k Barge lots asd. *l F.o.b. scow Hudson river. *m Less 2% for cash. *n F.o.b. cars. *q F.o.b. yard. *r less 5% disc. 15th. *s Less 2% disc. 10 days. *t Less 10¢ disc. 10 days. *u Less 5¢ disc. 10 days. *v Less 2% disc. 15 days. *w Less 10¢ disc. 15 days. *x Incl. 35¢ switch. charge. *y F.o.b. dock. *z 5-8 tons. *aa Less 5% disc. 15 days. *bb Less 2% 25th of month *cc F.o.b. plant cl *dd F.o.b. plant‡‡

CONCRETE BLOCK: *a Cinder. *b Waylite. *c Haydite. *d Celocrete, *e 5¼ x 8 x 12 in. *f 8 x 4 x 16. *g F.o.b. truck at job. *l F.o.b. plant San Rafael. *m F.o.b. yard. *n 8 x 8 x 16. *o Less 2% disc. 10 days. *p Less 2% disc. 10th. *q Less 5% disc. 10th. *r Less 2% disc. 15 days. *s Less 2% disc. cash. *t Siporex, 7 x 8 x 16. *u Less 5% disc. 10 days. *v Less 12% disc. 15th.

READY MIXED CONCRETE: *a 6 cu yd or over del. Man. *b 25 cu yds or more. *c 10-100 cy. *d 1-3 mi. zone add 15¢ for ea. add'l 1-mi. zone. *e 3,000 lb comp. *f 2,500 lb. comp., less 5% disc. 30 days. *g Less 25¢ disc. 15 days. *h Less 50¢ for cash. *i 5% off for cash. *j 2% off for cash. *k Federal tax included. Add 6% mun. & prov. tax. *l 1:2½:3½ base price. *m F.o.b. yard. *n Plus escalator clause. *o Less 2% disc. 15 days. *p Less 50¢ disc. 15 days. *q Less 2% disc. 10 days. Add 50¢ per zone. *r 2000 wgt. *s Less 5% disc. 10 days. *t Incl. 50¢ heating. *u Less 2% disc. 15th. *v Sat. del.+50¢. *w 10-100 cy. *x Del in zone 20-B. *y less 25¢, 10 days. *z less 1% in 30 days. *aa 6 bag mix

CURRENT MAXIMUM PRICES AT CEMENT MILLS: Subject to 10¢ discount, 15 days. For paper bags add 50¢ per bbl., not refundable *Prices guaranteed through December 31, 1960*

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$3.55	Buffington, Ind	$3.55	Steelton, Minn	$3.60	Muskegon, Mich	$3.55	Toledo, O	$3.60
Clinchfield, Ga	3.55	Independence, Kan	3.35	Leeds, Ala	3.40	Saginaw, Mich	3.60	Milwaukee, Wis	3.50
Kingsport, Tenn	3.55	Hannibal, Mo	3.50	Duluth, Minn	3 60	Wyandotte, Mich	3.60	Green Bay, Wis	3.50
West Des Moines, Iowa	3.60	Northampton, Pa	3.50	Hudson, N. Y	3.50	Buffalo, N. Y	3.55	Ironton, O	3.55
Nazareth, Pa	3.50	Universal, Pa	3.60	Alpena, Mich	3.50	Oswego, N. Y	3.60	Montreal, Can	2.81
Bath, Pa	3.50	Waco, Tex. (+ 10¢ tax)	3.35	Detroit, Mich	3.60	Cleveland, O	3.65	W. Winfield, Pa	3.60
Leeley, Pa	3.50	Giant, S. C	3.55	Howes Cave, N. Y	3.50	Alsen, N. Y	3.50	Security, Md	3.50

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8¼ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	s	s	s	$28.70PS	$45.00PS	$0.2740PS	$0.2355	$0.1308uS	$0.2454uS	$0.1258S	$0.1328S	$0.245
Baltimore	s	s	s	21.00r	.....	.09i	0.18r	.09iwE	.18iwE	.095	.10i	0.19r
Birmingham	.....	66.00i	.....	25.12	25.69O	.1069	0.1093O	.1162w	.1188Ow	.1008O	.1069	0.1093O
Boston	.....	.....	.....	22.00apS	46.00apS	22.00anS	46.00anS	.105awF	.22awF	.14aOR	.15OR	.....
Chicago	150.00‡a	98.00‡ab	3.95/4.00‡aj	22.00b	32.00b	20.40bv	30.40bv	.10bwH	.18bwH	.08b	.....	.....
Cincinnati	.....	.....	.....	26.00SU	.....	26.00ff	.....	.1165wSU	.....	.109	.1265	.....
Cleveland	.....	89.50‡d	6.30	26.00rA	.....	26.00rA	.....	.1165twAF	.....	.....	.1265tA	.21A
Dallas	s	40/80p	s	25.90	46.35	.1138	.1983	30.50	52.45	.1100	.1138	.1983
Denver	.....	62.00a	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	114.00	.....	31.50R	.....	32.20wR	.....	30 24wIR	.....	27 84	....	.24
Kansas City	s	s	s	18.75cl	.....	18.75cl	.....	.0875J	.....	.0675c	0.10	.....
Los Angeles‡	s	s	s	21.50dmz	.....	21.50dmz	.....	21 50d Kz	.....	22 00daa	23.90jXv	26.30jXv
Minneapolis	.....	.....	3.73A	23.70	.....	23.70r	.....	.105w	.....	0.95	.1375bb	.....
Montreal	s	s	s	30.50n	43.60n	.167n	.211n	17.80nuE	22.20nuE	.155n	.242n	.27nX
New Orleans	s	s	s	20.00e	.....	20.00es	.....	.095ew	.....	.085eB	.095eBL	.1905eB
New York	.....	.....	3.70f	20.99mO	42.95mO	20.99mO	42.94mO	9.61uF	19 01uF	.....	9.68u	19.11u
Philadelphia	.....	.....	.....	21U	.....	21U	.....	.0951Tw	.....	.095U	.....	.....
Pittsburgh	60.00k	95.00n	6.35n	31.20is	.....	31.20isv	.....	.1403JS	.....	.141S	.1403i	.....
St Louis‡‡	.....	.....	.....	19.74j	21.65	.1825f	.1825	.09fw	.092fw	0.165f	.1825O	.30R
San Francisco	.....	70.00	.....	22.50qdd	41.00qdd	22.50qkvdd	40.00qkvdd	22.50gNdd	46.50gNdd	23.25gWdd	23.50gXdd	.2023gXdd
Seattle	.....	.....	.....	24.00r	47.00k	33.00nsv	38.50	25.50KE	.....	28.75hsY	25.80hsX	49.80hrsX
Toronto	.....	139.00‡t	4.50f	38.90	59.01er	0.3075	0.2773ee	0.222w	0.2704uee	0.233	0.212Zee	.268Zee

‡ Delivered. # Add 4% sales tax. ## Add 2% intrastate sales tax. R Revised.

PAVING BRICK & BLOCK: *a Less 2% disc. 10th. *b 3 x 3⅝ x 8. *c 2¼ x 8¼ x 4. *d Truckload lots. *e Not used. *f 2" interior 6 lb tr. *g Less $1/Mdisc. 15th. *h 2" tr, 8 lb. *i 3 x 3⅝ x 8½. *j 2¼", 6 lb. tr. *k Used. *l Redshale. *m Pine: oak $6.57. *n Truck del. *o Less $1/M disc. 15 days. *p Used: $40; new: $80.

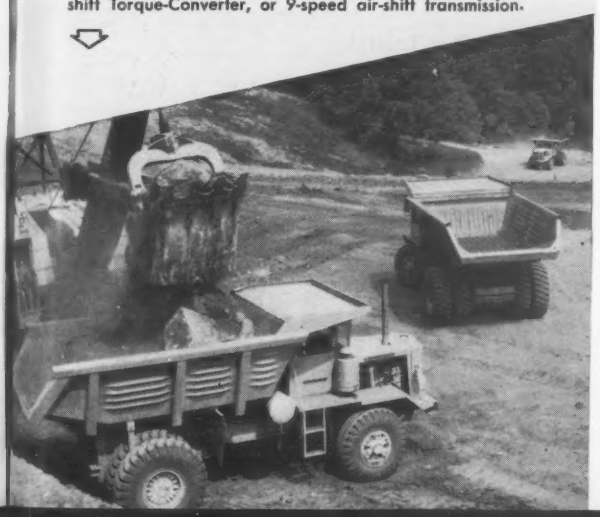
ASPHALTS: *a F.o.b. refinery, Everett, Mass. *b F.o.b. refinery, Lockport, Ill. *c F.o.b. Sugar Creek, Mo. *d F.o.b. refinery, El Segundo. *e F.o.b. Baton Rouge. *f F.o.b. Hartford, Ill. *g F.o.b. refinery, Richmond, Calif. *h F.o.b. Martinez. *i F.o.b. refinery, Baltimore. *j F.o.b. refinery, Inglewood, Calif. *k 50-110 penetr. *l Less than 100 penetr. *m 40/300 penetr. *n F.o.b. refinery, Montreal. Fed. tax included; add 6% for mun. & prov. *o Drums not avail. Shipped in steel bbl. *p 60/70 penetr. *r In customer's drums. *s Shipped in drums, per drum. *t 150/300 penetr. *u Per 100 gal. *v Per ton. *w Per gal. *x Also tank trucks *y F.o.b. Oakland. *z F.o.b. Edmonds. *A F.o.b. refinery, Cleveland, *B F.o.b. Destrehan, La. *E RC. *F Also RC. *G Also MS *H RC 0-5 incl. *I MC 4. *J MC, RC $0.095. *K MC 3, 4, & 5. *L MS. *M MC 1-5, RC 1-5, $0.0918. *N MC 3. *O Truck-load. *P F.o.b. refinery, Atlanta. *Q F.o.b. Eldorado, Ark. *R Delivered within 50 mi. *S Less 2% disc. 10 days, net 30. *T Less 1% disc. 10 days. *U F.o.b. refinery. *V Less 2% disc. 15 days. *W SC 2. *X RS 1. *Y SC 1. *Z Incl. 10% Sales Tax. *aa SC 3, 4, & 5. *bb RS 3. *cc In used drums. *dd less disc of $1 ton. *ee 45 Imp. gal. drums *ff 60-150 penetration

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, July 21; Next, Aug. 18.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, July 28; Next, Aug. 25.
- Wage Rates, Building Board Insulation: Last, July 28; Next, Sept. 1.
- Iron & Steel Products, Pipe: Last, July 14; Next, Aug. 11.

Now "trade" dead weight for payload..and haul 40% faster!

Heap-load the big-target Payhauler body in minimum time. Strong rock-ribbed corrugations absorb shock—resist wear and distortion. Choose the "95" with power-shift Torque-Converter, or 9-speed air-shift transmission.



New strength-multiplying corrugated body design results in payload-gaining weight reduction of both International Payhauler models. New "95" capacity is increased to 27 tons—and the new "65" becomes the only 19-tonner on the market!

Look at those exclusive, rock-ribbed body corrugations! International applies this strength-multiplying principle to reduce Payhauler® body weight by an amazing 30%! You "trade" 2½ tons of power-wasting dead weight for 3 bonus tons of payload capacity in the new 95 Payhauler!

New high-torque, high-output diesel power high-balls 27-ton payloads up to 40% faster than the former "95" could haul only 24 tons! The new 375 hp DT-817 International diesel engine gives the new 95 Payhauler the wallop of 40 extra turbocharged "horses."

Prove to yourself that top load-carrying capacity plus top power-to-weight ratio give 95 Payhaulers tremendous profit-earning advantages. Add up other big Payhauler exclusives: fast reverse, up to 7.1 mph. for spotting speed; big-target bodies for loading zip; 11-second inverted-hoist dumping; load speeding safety of torqmatic braking and positive power-steering! Let your International Construction Equipment Distributor demonstrate!

International® Construction Equipment

International Harvester Co., 180 N. Michigan Ave., Chicago 1

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors... Self-Propelled Scrapers and Bottom-Dump Wagons... Crawler and Rubber-Tired Loaders... Off-Highway Haulers... Diesel and Carbureted Engines... Motor Trucks... Farm Tractors and Equipment.

McGregor Memorial Community Conference Center
Wayne State University, Detroit, Michigan
Architects and Engineers: Minoru Yamasaki and Associates, Birmingham, Michigan
Structural Engineers: Ammann & Whitney, Milwaukee, Wisconsin
General Contractor: Darin & Armstrong, Inc., Detroit, Michigan

REINFORCED CONCRETE imposes no design limitations

Exponents of contemporary building design are utilizing the greater flexibility of reinforced concrete to open a new era in American architecture. The free-forming qualities, and complete compatibility to glass and other materials, offer unlimited freedom to the creative architect for both interior and exterior design.

Before you build any type of building, consider the many design advantages of this extremely flexible construction material.

Concrete Reinforcing Steel Institute
38 South Dearborn Street
Chicago 3, Illinois

12-6

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲† **R. I., Newport**—HOUSING—BA 8/23—Dist. P. Wks. Office, 1st Naval Dist., 495 Summer St., Boston, Mass., 500 unit Capehart Housing, U. S. Naval Base, NBy (CH) 29544, Spec. 29544/59. Plans deposit $130. CD 10/2.

BUILDINGS—LB & CA

▲ **Country Squire Homes,** c/o John A. Moran & Son, Inc., 28 Shetuckey St., Norwich, Conn., Owner Builds, $3,437,500, 250 Cape Cod, Ranch, split-level HOUSES, Amos Lake, PRESTON, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany, Bids opened 7/28,

N. Y.—**Savin Bros., Inc. & Rusciano Constr. Corp.,** 522 Cottage Grove Rd., Bloomfield, Conn., LB **$6,663,659.50,** est. $8,482,000, (12 bidders), c. conc. pavt. 8.26 mi. (2.98 acc.) 2 brs. comp. I-beams, 2 sp. 125.8 ft., 2 sp. 125.8 ft., 5 H.G.S. comp. I-beam, 3 sp. 136.9 ft., 3 sp. 134.3 ft., 5 sp. 356.6 ft., 5 sp. 356.2 ft., 4 sp. 239.9 ft. Windsor-Deposit SH 5338 Bettsburg-McClure, Pt. 2, SH 8285, Rtes. 17 and 41, Farc 60-121, Proj. No. F-344(27), Broome Co.;

N. Y.—**Yonkers Contg. Co., Inc.,** 969 Midland Ave., Yonkers, N. Y., LB **$3,328,958.70,** est. $4,149,000, (5 bidders), b. conc. 7.63 mi. (0.57 acc.) bridge-rein.-con. box 20.8 ft. sp.; R.R. grade sp.-N. Y. C. R.R. prestressed beam 3 spans 139.4 ft.; HGS Comp. I-beam 4 spans 200.2 ft. Billings-Poughquag, SH 8525 Stonehouse-Stormville, SH 1162; Stonehouse-Pawling, SH 1677; Pawling-Patterson, SH 343; Pawling Village, SH 5009, Rtes. 22 and 55, FARC 60-110, Proj. F-102S(3); F-625(5) and F-FG-625(5); F-350(23), Dutchess Co.;

N. Y.—**Rusciano Constr. Corp. & Del Balso Constr. Corp.,** 2 Penn Pl., Pelham Manor, N. Y., LB **$12,696,072.40,** est. $14,294,000, (9 bidders), c. conc. pavt. 2.1 mi., misc. work 0.28 mi., acc. rds. 4.86 mi. b. conc. 5.26 mi., incl. 2 R.R. grade sep. pl. girders, 50.5 ft., 49.9 ft., H.G.S. 7 rolled girder, 3 sp. 101.6 ft., twin, 4 sp. 199.8 ft., 4 sp. 190.9 ft., 2 pl. gird. 1 sp. 114.9 ft., 1 sp. 100.9 ft., Clove Lakes Expressway, Cont. 1, Int. Rte. Conn. 512 (Goethals Br. approach to Victory Blvd.) Int. Rte. 278, FICLE 60-1, Proj. I-278-1(49), Richmond Co., LB **$37,546.**

N. Y.—**Hendrickson Bros., Inc.,** 63 N. Central Ave., Valley Stream, N. Y., LB **$4,040,173.20,** est. $5,555,000, (7 bidders), grading, drainage 7.61 mi., b. conc. 11.77 mi., 5 H.G.S. rein.-con. rigid frame, 2 sp. 126.4 ft., 2 sp. 145.78 ft.; 2 sp. 121.78 ft.; 2 sp. 148.82 ft., 2 sp. 120.58 ft., 2 H.G.S. comp. gird. 2 sp. 140.94 ft.; 2 sp. 153.98 ft. Heckscher State Parkway Cont. 2 (Southern State Parkway to Sunrise Hy., HSP 60-1, Suffolk Co.

BUILDINGS—LB & CA

▲ **Turner Constr. Co.,** 150 E. 42nd St., New York, N. Y., CA Est **$8,000,000,** 16 story, 604,000 ft. OFFICE, Madison and Park Aves., E. 27th and 28th St., NEW YORK, N. Y. New York Life Insurance Co., 51 Madison Ave., New York, N. Y. Edwards & Hjorth, 67 W. 44th St., New York, N. Y., structural engrs. Jaros, Baum & Boles, 730 3rd Ave., New York, N. Y., mech. engrs. CD 7/17.

▲ **Uris Bros. Corp.,** 300 Park Ave., New York, N. Y., Owner Builds, CA **$75,000,000,** 38 story, 2,100 room HOTEL, west side 6th Ave. between 53rd and 54th St., NEW YORK, N. Y. Morris, Lapidus, Kornblath, Harley, Liebman, 139 E. 56th St., New York 22, N. Y., archts.

▲ **URIS Builders Corp.,** 300 Park Ave., New York 22, N. Y., Owner Builds, **$75,000,000,** 42 story, 1,700,000 sq. ft. OFFICE, east side Ave. of Americas, W. 51st to 52nd Sts., NEW YORK, N. Y. Emery Roth & Sons, 400 Park Ave., New York 22, N. Y., archts. This replaces Zechendorf Hotel. CD 2/10/59, under CA.

▲ **B. S. Brown & Benjamin Bragman,** Morris Plains Rd., R.D. 2, Dover, N. J., Owner Builds, **$4,500,000,** 200 HOUSES, roads off Shongum Lake, Randolph Twp., DOVER, N. J. Wm. Chirgotis, 80 Morris Ave., Springfield, N. J., archt.

▲ **Sordoni Constr. Co.,** 534 Main St., Johnstown, Pa., **Bethlehem Steel Co.,** 701 E. 3rd St., Bethlehem, Pa. and **United States Steel Co.,** 525 William Penn Pl., Pittsburgh 30, Pa., CA Est. **$5,000,000,** 60 x 220 ft. HEADQUARTERS, incl. 2 story, 70 x 120 ft. wing, 100 x 300 ft. STORES and LINE BLDG., Broad St., JOHNSTOWN, PA. Pennsylvania Electric Co., 222 Levergood St., Johnstown, Pa. Lacy, Atherton & Davis, Hotel Sterling Bldg., Wilkes-Barre, Pa., archts.

▲ **Irwin & Leighton, Inc.,** 1505 Race St., Phila., Pa., CA **$5,000,000,** 300-unit Marriott MOTOR HOTEL, PHILA., PA. Hot Shoppes, Inc., 5161 River Rd., Bethesda, Md. William B. Tabler, 401 7th Ave., New York, N. Y., archt.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ **Middle Tennessee Utility Dist.,** Smithville, Tenn., Owner Builds, **$4,650,000,** 250 mi. underground natural gas facilities, Smithville, Alexandria, Dowelltown and Liberty, Dekalb Co., TENNESSEE.

BUILDINGS—LB & CA

▲ **Ga-Tex., Inc.,** 433 E. Virginia Ave., College Park, Ga., Separate Contracts, **$6,000,000,** 435 RESIDENCES, Old Bill Cook Rd., ATLANTA, GA.

▲ **The Auchter Co.,** 1021 Oak St., Jacksonville, Fla., LB **$4,788,500,** (11 bidders), CIVIC AUDITORIUM JACKSONVILLE, FLA. City Comm., City Hall, Jacksonville, Fla. Bids July 19. CD 6/8.

▲ **Stone & Webster Engineering Corp.,** 49 Federal St., Boston, Mass., CA **$30,000,000,** design and construct Kraft paper and liner board producing PAPER MILL, just south of city, PHENIX CITY, ALA. Dixie Land & Timber Co., 1401 Peachtree St., Atlanta, Ga.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Ill., Chicago**—HANGAR — BA 8/19 — Dpt. Purchases, City Hall, Zone 2, No. 80.85-60-116, Contract RB-19, Transworld Airlines Hangar, Chicago-O'Hare International Airport, Park Ridge, $5,000,000. Naess & Murphy, 224 S. Michigan Ave., Zone 4, engrs. CD 11/4.

BUILDINGS—BA

▲ **O., Mentor**—PLANT—BA 8/15—W. S. Tyler Co., 3615 Superior Ave., Cleveland, Zone 14, (selected list of bidders) 500,000 sq. ft. mfg. plant, $6,000,000. McGeorge-Hargett & Hoag, 7016 Euclid Ave., Cleveland, Zone 3, engrs. CD 1/21.

HEAVY CONSTRUCTION—LB & CA

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing, Zone 26,

Mich.—**D. J. McQuestion & Sons,** 4909 Huron St., Dearborn, Mich., CA **$3,377,222,** grading, drainage structures 5.2 mi., nine bridges, US 16, Muskegon Co.;

Mich.—**Alpine Constr. Co.,** 245 Marquette St., St. Ignace, Mich., CA **$520,638,** grading, drainage structures 10.9 mi., M 123, Chippewa Co.;

Mich.—**Charles J. Rogers, Inc.,** 14836 Grand River Ave., Detroit, Mich.; **Cooke Constr. Co.,** 1116 Penobscot Bldg., Detroit, Mich., and **Jutton-Kelley Co.,** 13240 Alber Ave., Dearborn, Mich., CA **$3,653,635,** grading, drainage structures, paving, sodding 0.6 mi., four bridges, Walter Chrysler Expressway, Wayne Co. Bids July 6, awarded July 19. Grand total $7,551,495. CD 7/15, under LB.

▲ **Malan Constr. Corp.,** 2 Park Ave., New York 16, N. Y., LB **$17,250,000,** (7 bidders) water treatment plant, pumping station, Allen Park, DETROIT, MICH. Bd. Wayne Co. Bd. Comn., 400 Woodward St., Detroit, Mich. Giffels & Vallet, Inc., L. Rossetti, Marquet Bldg., Detroit, Mich., engrs. Bids July 19. CD 6/2.

BUILDINGS—LB & CA

▲ **Kilroy Structural Steel Co.,** 8500 Union Ave., Cleveland 5, O., CA Total est. **$6,000,000,** structural steel for 500,000 sq. ft. INDUSTRIAL PLANT, MENTOR, O. W. S. Tyler Co., 3615 Superior Ave., Cleveland 14, O. McGeorge-Hargett & Hoag, 7016 Euclid Ave., Cleveland 3, O., engrs. CD 1/21.

▲† **Corbetta Constr. Co., Inc.,** 208 LaSalle St., Chicago, Ill., LB **$4,288,400,** (10 bidders), Zero Gradient Sychrotron for Argonne National Laboratory, incl. 5 story (4 story below ground) center bldg., 200 ft. diam. circular ring bldg., rein.-con. tunnels, roads, parking lots, retaining walls, sanitary and storm sewers, LEMONT, ILL. Atomic Energy Comn., Bailey and Bluff Rd., Lemont, Ill. CD 7/28.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—LB & CA

▲ **State Park Bd.,** Jefferson Bldg., 100 E. Capitol Ave., Jefferson City, Mo., rejected bids May 5, lease and constr. resort hotel, lodge, swimming pool, skating rink, etc., Table Rock State Park, MISSOURI. $13,000,000. Will re-advertise. CD 5/12, under LB.

▲† **Texas-Tecon Corp.,** 202 Davis Bldg., Dallas 2, Tex. and **Green Constr. Co.,** 321 Locust St., Des-Moines, Iowa, LB **$6,326,679,** est. $6,717,209, (10 bidders), embankment, spillway, service bridge, Canyon Dam and reservoir, Guadalupe River, CIVENG-41-443-60-66. TEXAS. U. S. Eng., P. O. Box 1600, Fort Worth, Tex. Bids July 26. CD 7/19.

BUILDINGS—LB & CA

▲ **International Paper Co.,** Pine Bluff, Ark., Owner Builds, $13,000,000, third mill, groundwood mill addn., recovery boiler, addn. POWER PLANT, PINE BLUFF, ARK.

▲ **Watson Foundation Co.,** 2015 W. Berry St., Fort Worth, Tex., CA Total est. **$9,500,000,** foundation contract for White Plaza MOTOR HOTEL, 19 story OFFICE, WICHITA, KAN. Owner, c/o Preston P. Reynolds & Walter W. Anchlager, archts. 2505 Turtle Creek Blvd., Dallas, Tex. CD 5/6.

▲ **Johnson, Drake & Piper, Inc.,** 2244 W. Holcombe Blvd., Houston, Tex., LB **$4,159,700,** est. $2,500,000, (5 bidders), SENIOR HIGH SCHOOL, South Worthing area, Scott and Reed Rd.; SENIOR HIGH SCHOOL, Southwest Bellaire area, Richmond, Hillcroft, Beverly Dr., HOUSTON, TEX. Houston Ind. School Dist., 1300 Capitol Ave., Houston, Tex. Bids July 21. CD 7/8.

▲ **Sam P. Wallace & Co.,** 2102 Proctor St., Dallas, CA Approx. **$5,425,000,** air-conditioning, heating, plumbing, ventilation and sprinkler system for 44-story OFFICE, HOUSTON, TEX. Humble Oil & Refining Co., 1216 Main St., Houston, Tex. CD 8/11/59.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Oakland**—TERMINAL BLDGS.—BA 8/15—Oakland Port Comn., Grove St. Pier, Metropolitan Airport Terminal Bldgs., incl. 1 story, 80x500 ft. concrete bldg., 2 story, 200x200 ft. concrete terminal, 11 story, concrete control tower, cocktail lounge, 1 story, 45x700 ft. bldg., 10 aircraft parking gates, 80x100 ft. equipment bldg. Extended date. Warnecke & Warnecke, Financial Center Bldg., archts. CD 6/9.

▲† **Utah, Ogden**—ASSEMBLY, etc.—BA 8/26—Boeing Airplane Co., 7755 E. Marginal Way, Seattle, Wash., nine assembly bldgs., heating plant, 6 mi. roadway, electrical distr., utility piping systems, renovating 57 bldgs. for Minuteman Assembly operations at Hill Air Force Base for the Ballistic Missile Div. of Air Research & Development Command, 5740 Arbor Vitae St., Inglewood, Calif. $8,000,000. Plans deposit $150. Leo A. Daly & Assocs., 607 Securities Bldg., Seattle 1, Wash., archts. CD 2/8.

BUILDINGS—BA

▲ **Calif., Redding**—PLANT—BA 8/18—Calavaras Cement Co., 315 Montgomery St., San Francisco, plant, incl. mfg. facilities, silos, pack house, office, $14,000,000, Fuller Co., 124 Bridge St., Catasauqua, Pa. and Homan & Lawrence Engineering Co., 1295 Folsom St., San Francisco, consult. engrs. CD 11/17.

HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Dpt. Hys., Olympia, Bids opened 7/26,

Wash.—**Puget Sound Bridge & Dry Dock Co.,** 2929 16th Ave. SW, Seattle, Wash., LB **$3,100,000,** grading, erosion control, c. conc. paving, fencing, rein.-con. tunnel, two rein.-box girder bridges 0.657 mi. Primary State Hy. 1, Seattle Freeway Lakeview Blvd. to Shelby St., Proj. FAP I-5-3(84)167 King Co., CD 7/15;

Wash.—**J. P. Hopkins Co.,** 4146 Blvd. Place, SE, Box 247, Mercer Island, Wash., LB **$2,360,729,** draining, erosion control, grading, surf. constr. bit. surf. treatment, b. conc. paving, fencing, 2 precast prestressed concrete girder bridges, rein.-concrete slab bridge, signing 3.861 mi. Primary State Hy. No. 1, East City Limits of Tacoma to King County Line, FAP Nos. I-5-3(102)135, Unit 2 and I-5-3(96)137 Pierce Co.;

Wash.—**Crick & Sons,** Box 102, Yardley, Wash., LB **$1,042,278,** grading, surf. constr. bit. surf. treatment, b. conc. and cement concrete paving, signing, 6.4 mi. Primary State Hy. 3, Smythe Rd. to Hatch Rd., FAP F-037-2(8). CD 7/8.

▲ **Peter Kiewit & Sons Co.,** 1024 Omaha National Bank Bldg., Omaha, Neb., CA **$14,798,170,** main section, 90,000 kw. Carmen-Smith Hydro Electric Proj., Upper McKenzie River, EUGENE, ORE. Eugene Water & Electric Bd., Box 1112 Eugene, Ore. Bids July 8. CD 7/14, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., LB **$3,993,744,** (7 bidders), 0.6 mi. U. S. Hy. 101 Freeway from Mendocino Ave. Santa Rosa to Grant Creek, incl. 5 interchanges, 4 bridges, Sonoma Co. Bids July 27. CD 6/22.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Guy F. Atkinson Co., 10 W. Orange Ave. South San Francisco, Calif., CA **$16,237,675,** 7.4 mi. 8 lane freeway San Diego Freeway between 0.3 mi. south, Casino Rd. and 0.3 mi. north, Valley Vista Blvd., Los Angeles Co. Bids July 7. CD 7/12, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, Bids opened 7/6,

Fredrickson & Watson Constr. Co., and **Lew Jones Constr. Co.,** 873 81st Ave., Oakland, Calif., CA **$4,893,755,** grading, erecting traffic separation bridges and interchange structures, route of future US 99 Freeway through city of Merced, Merced Co. CD 7/11 under LB.

▲† **Gibbons & Reed Co.,** 825 W. 9th North St., Salt Lake City, Utah, LB **$6,215,577,** est. $7,297,246, (16 bidders) earthfill Whiskeytown Dam, Trinity River Div., Central Valley Proj., DC 5350, CALIFORNIA, Bureau Reclamation, Dpt. Interior, Lewiston, Calif. Bids July 21. CD 6/2.

BUILDINGS—LB & CA

▲ **Westfall Co., Inc.**, 3427 NE Halsey St., Portland, Ore., LB $6,028,084, (7 bidders), 21 story tower rising from 4 story base PORTLAND HILTON HOTEL, PORTLAND, ORE. Portland Hilton Hotel Corp., c/o Skidmore, Owings & Merrill, archts., 2040 SW Jefferson St., Portland, Ore. Bids July 22. CD 7/5.

CANADA

BUILDINGS—SLC

▲ **Ont., Niagara Falls**—PLANT—The Ford Motor Co. of Canada Ltd., 120 Bloor St. E., Toronto, soon lets contract 1 story, 116,000 sq. ft. glass fabrication plant, Crowland Twp., 15 mi. southwest of here. $6,000,000. Giffels & Vallet of Canada, Ltd., 181 Eglinton Ave. E., Toronto, engrs. CD 6/3.

HEAVY CONSTRUCTION—LB & CA

▲ **Foundation Co. of Canada**, 1220 Bay St., Toronto, Ont., CA $23,668,000, (8 bidders), 1,500,000 sq. ft. donut shaped air terminal, extended arms for aircraft loading ramps, Toronto Malton Airport, TORONTO, ONT. Dpt. Transport, Hunter Bldgs., Ottawa, Ont. Bids July 21. CD 7/15.

BUILDINGS—LB & CA

▲ **E. G. M. Cape & Co., (1956) Ltd.**, 4898 Western Ave., Westmount, Montreal, Que., CA Est. $33,000,000, 200 ton Kraft PULP MILL near present Price plant, KENOGAMI, QUE. Price Bros Co., Ltd., Price House, 65 Ste. Anne St., Quebec City, Que. CD 5/17.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **M. W. Kellogg Co.**, 711 3rd Ave., New York 17, N. Y., U.S.A. CA Est. $33,000,000, OIL REFINERY, KARACHI, PAKISTAN, Burmah Oil Co., Ltd., Caltex (Texaco, Inc., 135 42nd St., New York, N. Y., U.S.A. and Standard Oil of California, 225 Bush St., San Francisco, Calif., U.S.A.) Royal Dutch Shell Group, Standard Vacuum Oil Co., (Standard Oil Co. of New Jersey, 30 Rockefeller Plaza, New York, N. Y., U.S.A. and (Socony Mobil Oil Co., 150 E. 42nd St., New York, N. Y. U.S.A.) and Pakistan Interests. CD 9/24.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

Peru—BA 8/24—Fondo Nacional de Desarrollo, Av. Uruguay 514, Lima, finance and construct electric power facilities for towns in 13 departments. $7,100,000.

Peru—BA 10/24—Fond Nacional Desarrollo, Av. Uruguay 514, Lima, water and sewerage services for 80 towns and cities. $5,000,000.

PROPOSED PROJECTS

SEWERS, WASTE DISPOSAL

▲ **District of Columbia and Virginia**—D. C. Govt. Dpt. Sanitary Engineering, 499 Pa. Ave., N. W., Wash., D. C. sanitary interceptor and trunk sewer line to extend from Dulles International Airport to D. C. Potomac interceptor. $25,000,000. Burns & McDonald, Engineering Co., 95 and Toast Sts., Kansas City, Mo., consult. engrs. CD 6/30.

BRIDGES

▲ **O., Cleveland**—Bd. Comrs. Cuyahoga Co., 1219 Ontario St., Zone 14, bond election Nov. 8, bridges, extending rapid transit to airport, $5,000,000. CD 11/12.

AIRPORTS

▲† **Calif., Lemoore**—OPERATIONAL FACILITIES—Dist. P. Wks. Office, 12th Naval Dist., San Bruno, operational facilities, training maintenance supply, admin. community utilities, ground imprv. Naval Air Station $10,568,000. CD 9/25.

▲ **Okla., Oklahoma City**—AERO MEDICAL TRAINING—Oklahoma City Airport Trust, First National Bldg., plans by Hudgins, Thompson & Ball, 1411 Classen St., 175,000 sq. ft. aero-medical training bldg., at FAA Center, Will Rogers Airport, $5,000,000. CD 12/26/57.

UNCLASSIFIED

▲† **Mo., St. Louis**—JEFFERSON EXPANSION MEMORIAL ARCH—National Park Service, Dpt. Interior, Jefferson National Expansion Memorial, 11 N. 4 St., Zone 2, plans by Eero Saarinen & Assocs., archts.-engrs., 1300 Woodward St., Birmingham, Mich., Jefferson Expansion Memorial Arch, river front between Eads Bridge and Poplar St. Over $10,000,000. Bids about July 1, 1961. CD 8/14/58, under Bridges.

▲ **Ore., Portland**—DOCK—Port of Portland, 3070 S. Front St., $9,500,000 bond election Nov. 8, dock reconstr. CD 10/21/59.

▲ **Tex., Austin**—ELECTRIC POWER PLANTS—City, City Hall. Bond election Aug. 6, hydro electric power plant, $18,800,000; Imprvts. to existing plants, $1,000,000; Electric Sub-Station No. 1, $750,000; Electric Sub-Station No. 2, $650,000; Electric Sub-Station No. 3, $800,000; transformers, distribution circuits, services, meters, etc., $2,000,000; electric transmission line, $4,000,000.

PUBLIC BUILDINGS

▲ **Ark., Greenwood**—PLANT—City, City Hall, bond election, Aug. 9, plant $7,500,000. Norge Div. of Borg-Warner Corp., lessee.

▲ **Calif., San Mateo**—JUNIOR COLLEGE—San Mateo Junior College Dist., Coyte Point, San Mateo, plans by John Carl Warnecke, 111 New Montgomery St., San Francisco, Calif., 25 bldgs., 1 and 2 story, 468,000 sq. ft. Junior College, Parrott Dr. $7,000,000-$11,000,000. Bids Fall 1960. CD 10/24/57.

▲† **Ga., Albany**—HOUSING—Procurement Office, Turner Air Force Base, plans by Simpson, Aiken & Assoc., 873 Spring St. N.W., Atlanta, Ga., 430 Capehart housing units, $4,000,000. CD 5/11.

▲ **Ky., Fort Knox**—RESEARCH, DEVELOPMENT, TEST FACILITIES—U. S. Eng., 930 W. Broadway, Louisville, Zone 1, research, development, test facilities, troop housing $6,649,000. CD 9/25/59.

▲† **Mo., Fort Leonard Wood**—TROOP HOUSING FACILITIES—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., troop housing, community facilities, utilities, medical facilities, $9,087,000.

▲ **N. Y., New York**—HOSPITAL—Dpt. P. Wks., 1800 Municipal Bldg., Zone 7, plans by Charles B. Meyers Assocs., 31 Union Sq., Zone 3, and Shreve, Lamb & Harmon, 11 W. 44th St., Zone 36, 250 bed Gouverneur Hospital, Henry, Madison, Jefferson and Clinton Sts. $8,600,000. CD 3/30.

▲ **Pa., Trevose**—MENTAL INSTITUTION—Dpt. Public Welfare, Health and Welfare Bldg., Harrisburg, Phase II. mental institution for children, hospital bldgs., $4,500,000; Phase III, addnl. hospital bldgs., $2,500,000, Bensalem Twp., for Eastern Pennsylvania State School and Hospital.

▲ **Wis., Brookfield**—HOSPITAL—Misericordia Hospital, 1255 N. 77 St., Milwaukee, hospital $9,000,000.

▲ **Wis., Winnebago**—HOSPITAL—State Dpt. Pub. Welfare, Madison, plans by John J. Flad & Associates, consult. engrs.-archts., 2525 University Ave., Madison, hospital addn. $7,000,000.

▲ **N. S., Halifax**—HOSPITAL—Nova Scotia Dept., of Wks., Parliament Bldgs., Halifax, plans by C. A. Fowler & Co., 28 South St., Halifax, 10 story Victoria General Hospital wing, $7,500,000. CD 12/8/59.

COMMERCIAL BUILDINGS

▲ **Calif., San Jose** — HOUSES — Bel-Aire Development Corp., Financial Center Bldg., Oakland, Calif., Bel-Aire Village, 2,000 houses Subdivision, schools, churches, parks, recreation areas, shopping center, King, Cunningham, Tully and White Rds. $27,000,000.

▲ **Hawaii**—APARTMENTS, etc.—Vaihee Developers, Rm. 2, 205 Merchant St., Honolulu, plans by George K. Houghtailing of Community Planning Inc., 233 Merchant St., Honolulu, Hawaii, apartments parks, hotel, 50 cabin lodges, residences, Waihee Valley. $15,000,000.

▲ **Hawaii, Waikiki**—APARTMENTS—Chinn Ho, Capital Investment Co. Ltd., Latipac International Co., and Perini Corp., plans by John Graham and Co., 1441 Kapiolani Bldg., Honolulu, Hawaii, 27 story, 1060 unit Y shaped apartments, 2 parking levels, etc. $16,000,000.

▲ **Md., Suitland**—APARTMENT—Saul Ritzenberg Assoc., 1028 Connecticut Ave. N.W., Wash., D. C., plans by Collins & Krondstadt & Assoc., 7705 Georgia Ave. N.W., Wash., D. C., 500 unit Marlow Overlook apartment, St. Barnabas Rd., Marlow Heights, near here. $5,000,000.

▲ **Mass., Roxbury** — APARTMENT HOUSES — Thomas O'Connor & Co., Inc., 238 Main St., Cambridge and Leatherbee & Co., Brookline, two 16 story apartment houses, Mission Hill Section-Ruban Redevelopment Tract, Whitney St. $5,000,000. To go ahead in 1961.

▲ **Minn., Brooklyn Park**—SHOPPING CENTER—Joe Miller Constr. Co., 4130 Lyndale Ave. N., Minneapolis, Minn., shopping center, 69 St. between Hy. 52 and County Rd. 18. $5,000,000.

▲ **N. Y., Hempstead**—OFFICE, APARTMENTS—Samuel Bernstein & Sons and First Republic Assocs., 78-10 Parsons Blvd., Flushing, Zone 66, plans by Max M. Simon, 1841 Broadway, New York, Zone 23, 7 story office, four 3 story apartments, Imperial Square, Fulton Ave. between Terrace and Hilton Aves., $25,000,000.

▲ **N. Y., New York**—APARTMENT—Tishman Realty & Constr. Co., Inc., 666 5 Ave., Zone 19, plans by Emery Roth & Sons, 400 Park Ave. Zone 22, 20 story apartment between 71 and 72 Sts., west side of 3 Ave. $4,400,000.

▲ **N. C., Charlotte**—APARTMENT—C. D. Spangler Constr. Co., 1028 S. Boulevard, plans by Lyles, Bissett, Carlisle & Wolff, 1800 Gervais, Columbia, S. C., 22 story apartment, NW corner Tryon and 9th Sts. $4,000,000.

▲ **O., Euclid**—APARTMENTS—North American Development Co., c/o Robert Stakich 830 E. 185 St., Cleveland. Zone 19, plans by Raymond A. Davis, 25000 Euclid Ave., Cleveland, Zone 17, three 9 story apartments, thirty 1 and 2 story garden apartments, central recreation, swimming pool, West Side Highland Rd., $10,000,000.

▲ **Pa., Phila.**—CHEMISTRY—Temple University, 1900 Park Ave., plans by Nolen & Swinburne, 226 S. 16th St., chemistry buld. $5,000,000. CD 1/19.

▲ **Tex., Dallas** — HOSPITAL — Presbyterian Hospital Foundation, 4020 Junius St., Dallas, 300 bed hospital, $7,500,000.

▲ **Tex., Houston**—OFFICE, ETC.—Bill Bennett, 1512 Pierce St., Houston, 17 story, 150,000 sq. ft., steel & masonry Professional Tower Office; 4 story masonry & steel parking garage; site earthwork; Crawford, Gray, LaBranch and Pierce Sts., $4,090,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Hanford**—TIRE PLANT—Armstrong Tire and Rubber Co., 475 Elm St., West Haven, Conn., plans by David H. Horn, 2016 Merced, Fresno, Calif., 1,000,000 sq. ft. tilt-up rein.-co. tire mfg. plant at 11 and Lona Aves. $25,000,000. CD 5/10.

▲ **Colo., Pueblo**—POWER PLANT—San Isabel Electric Assoc., 316 W. 15 St., Southeastern Colorado Power Assocs., 901 W. 3, LaJunta, Colo. and Sangre de Crisco Electric Co., Salida, 44,000 kilo. power plant, $10,000,000. Ellerbe & Co., 333 Sibley St., St. Paul, Minn., consult. engrs.

▲ **Iowa, Davenport**—ALUMINUM SHEET ROLLING MILL—Aluminum Co. of America, 601 Brady St., aluminum sheet rolling mill, $10,000,000, construction 1960-61. CD 12/15.

▲ **Ky., Louisville**—PLANT—American Rubber & Chemical Co., Camp Ground Rd., polybutadrene and polisopropene chemical plant. $10,000,000-$15,000,000.

▲ **Miss., Vicksburg**—PLANT—American Metal Climax Inc., 1270 6 Ave., New York 20, N. Y., plant to produce nitrate of potash and chlorine. $7,000,000. Jacobs Engineering Co., 774 E. Green St., Pasadena, Calif., engrs.

▲ **N. C., Atlanta**—PLANT—Sherwin-Williams Co., 101 Prospect Ave., Cleveland, O., plans by Arthur E. Rowe & Associates, 3115 Prospect Ave., Cleveland, O., mfg. plant, Morrow, $4,000,000, Patchen, Mingledorff & Williams, 525 Telfair St., Augusta, Ga., consut. engrs.

▲ **S. C., Gaffney**—PLANT—Kahn Southern Industrial Development Corp., P. O. Box 595, Columbia, plans by McPherson Co., 408 Main St., Greenville, 350,000 sq. ft. textile finishing plant, $5,000,000.

▲ **Tenn., Hampton**—PLANT—Cranberry Magnetite Corp., iron smelting plant, $4,000,000.

▲ **Tex., Houston**—PLANT—The Linde Co., Div. of Union Carbide Corp. of New York, 3839 W. Alabama St., oxygen-nitrogen plant, Industrial Rd. $5,750,000; 20 mi. pipe line to move nitrogen to plants in ship channel area, $400,000.

AMERICANS ABROAD

▲ **Spain**—OIL REFINERY—Ohio Oil Co., The Products Terminal, Cleveland, O., U. S. A. and Compania Iberica de Petroleos of Spain, oil refinery, northern Spain. $18,000,000.

LATIN AMERICA

▲ **Argentina**—PIPE MILL, etc.—Acindar Industria Argentina de Aceros, S. A., Santa Fe, pipe mill, wire mill, rolling mill and expansion of generating capacity, Santa Fe Province. $22,349,000. International Finance Corp. loan $3,660,000.

▲ **Argentina, San Lorenzo**—PLANT—Imperial Chemicals Industries, Ltd., Gloucester House, 149 Park Lane, London, W1, England, plans to manufacture polyethylene. $16,100,000.

▲ **Colombia, Bogota**—Empresa de Energia Electrica de Bogota, Apartado Aereo No. 4453, Bogota, excav., fdns., structural steel for powerhouse; erection of one 308,700 lb/hr. boiler; 33,000 kw steam turbine generator and surface condenser plant; major auxiliaries; major piping sys.; installation of certain items of electrical equip. etc., Zipaquira Thermal Electric Plant. The J. G. White Engineering Corp., 80 Broad St., New York 4, N. Y. and OLAP-Ingenieria, Apartado Aereo No. 5099, Bogota, Colombia, S. A., consut. engrs. Information concerning bid documents may be obtained from owner or engineers after July 15.

▲ **Honduras**—Empresa Nacional de Energia Electrica, Tegucigalpa, electric power project, Lake Yojoa and Rio Lindo, Canaveral, 175 mi. transmission lines to connect plant with Tegucigalpa and with San Pedro Sula and Puerto Cortes. $14,750,000. World Bank Loan, $8,800,000.

▲ **Nicaragua**—Empresa Nacional de Luz y Fuerza (ENLF), diverting waters from basin, Rio Tuma on Atlantic side, Isthmian Divide into basin, Rio Viejo, Pacific side, 151 ft. high earth and rockfill Rio Tuma dam, 50,000 Kw hydroelectric power, 75 mi. north, Managua. $20,000,000. (Development Loan Fund Loan $2,500,000).

▲ **Peru, Lima**—Lima Light & Power Co. (Empresas Electricas Associadas), Lima, Marcapomacocha Scheme to divert waters from lakes and rivers, eastern slopes, Andes to Santa Eulalia River Basin, hydroelectric power plant, Huinco, Santa Eulalia. $54,000,000. World Bank loan, $24,000,000.

FOREIGN

▲ **Belgium, Mol** — PROCESSING PLANT — Eurochemic (Company owned jointly by 13 European Nations), Mol, processing plant for used atomic-fuel elements. $15,000,000. Constr. 1963.

▲ **B.W.I., Jamaica**—PLANT—Ludlow Corp., 26 Journal Square, Jersey City N. J., U.S.A., jute rug backing plant. Old Harbour, $4,000,000. Constr. Sept. 1960.

▲ **India, Dargapur**—PLANT—Phillips Carbon Black, Ltd., 6910 Fannin St., Houston, Tex. and Duncan Bros. & Co. Ltd., Calcutta, India, 22 million lb. annual capacity carbon black plant. $10,000,000.

(Proposal Advertisements see pp. 87 to 90)

OVERWHELMINGLY ACCLAIMED
BY ENGINEERS THE WORLD OVER...

the Zeiss Automatic Level

For 7 years now, in U.S. and Canada, contractors of every size, industrial, government and military field men have *tried and proved* the Zeiss automatic level (K&E NP5028). They all concur: it's faster to use, far simpler . . . and far more accurate.

With the Zeiss even a beginner can close with the speed and accuracy of a veteran. Rough level *just once* and go to work. Eliminated for good is the headache of constantly recentering a telescope bubble. The force of gravity does the job automatically, acting on a pendulum-suspended prism. Job time, on an average, is *cut in half!*

A book could be written about the success stories of this remarkable instrument. As a matter of fact, one has been . . . a fascinating collection of case histories from around the world. The book is full of worthwhile tips and techniques. It's free, and a copy can be yours in a week or so, if you write for it, today.

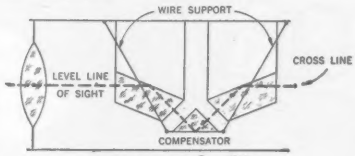
FOR YOUR FREE COPY

of the Zeiss level casebook, write to Keuffel & Esser Co., Hoboken, N. J., Dept. EN-8.

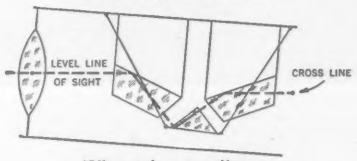
The Zeiss Automatic Level (K&E NP5028) is sold exclusively through K&E dealers.

How does the Ni 2 work?

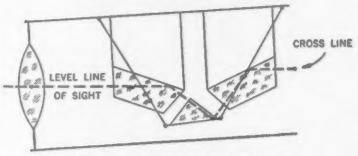
A *built-in compensator* . . . a lower prism suspended by specially treated fine wires . . . *automatically maintains a level line of sight* through the pull of gravity, as these illustrations explain.



Telescope horizontal



When telescope tilts up, compensator swings backward



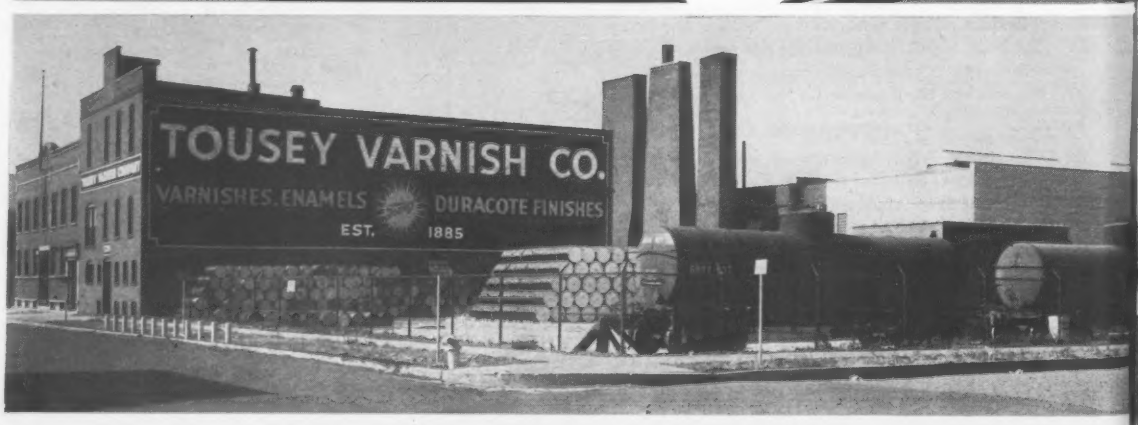
When telescope tilts down, compensator swings forward

AUTOMATIC COMPENSATOR *ALWAYS* MAINTAINS A LEVEL LINE OF SIGHT

KEUFFEL & ESSER CO.

2024

NEW YORK • HOBOKEN, N. J. • DETROIT • CHICAGO • MILWAUKEE • ST. LOUIS • DALLAS • DENVER • SAN FRANCISCO • LOS ANGELES • SEATTLE • MONTREAL


TOUSEY VARNISH CO.
VARNISHES. ENAMELS
DURACOTE FINISHES
EST. 1885

Our 75th year

CHAPTER THREE

Today, Tousey stands as a company 75 years young looking to the future with confidence. Under the guidance of Carl R. Heagstedt, who became president in 1954, Tousey in a stepped-up expansion program built a new manufacturing plant in East Moline, Illinois and acquired a subsidiary in Cleveland, Ohio during the past two years. These new outlets afford excellent service to various large manufacturing centers in their areas and place Tousey products in an ever widening circle across the country.

In this same spirit of expansion Tousey laboratories are developing new products to offer industry, while at the same time working steadily toward improvement of the present Tousey line of finishes.

Thus today we find a full-grown company established on a basis of good customer relationship and a devotion to the quality of its products. An earnest desire on the part of management to continue this program at all costs will undoubtedly prove a successful formula for continued expansion.

OUR 75th YEAR
1885-1960
TOUSEY PRODUCTS
DURACOTE for DURABILITY

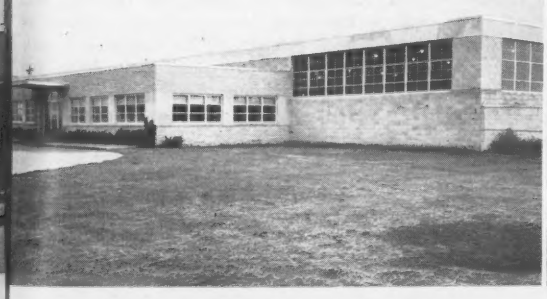
Tousey Varnish Company manufactures a full line of finishes for application by Dipping, Flo-coating, Hot Dipping, Automatic Spray, Electrostatic Spray, Airless and Hot Spray. Tousey is a major supplier of finishes to manufacturers of Farm Machinery, Road and Construction Machinery, Automobiles and Trucks, and to other representative manufacturers of products made of metal.

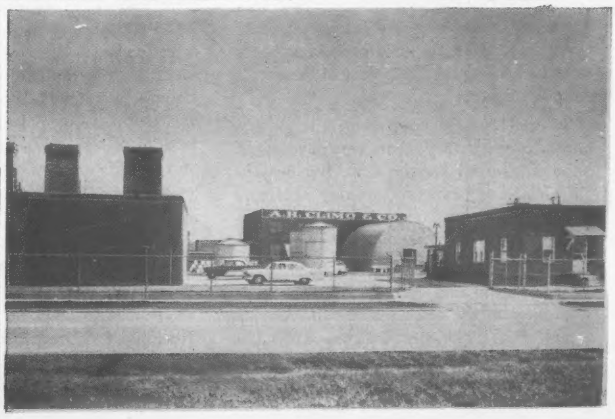
TOUSEY VARNISH COMPANY

Chicago Division: 520 WEST TWENTY-FIFTH STREET • CHICAGO 16, ILLINOIS

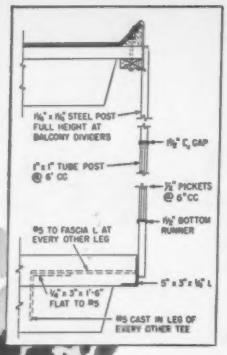
Quad-Cities Division: 2500 EIGHTH AVENUE • EAST MOLINE, ILLINOIS

A. H. Climo Division: 16908 WATERLOO ROAD • CLEVELAND, OHIO





another PRESTRESSED CONCRETE structure


½" x 1½" STEEL POST FULL HEIGHT AT BALCONY DIVIDERS
½" C. CAP
1" x 1" TUBE POST @ 6' CC
⅞" PICKETS @ 6" CC
½" BOTTOM RUNNER
PS TO FASCIA L AT EVERY OTHER LEG
5" x 3" x ½" L
½" x 3" x 1'-6" FLAT TO PS
PS CAST IN LEG OF EVERY OTHER TEE

Architect: Leon Brin, A.I.A., Denver; General Contractor: Norman Construction Co., Denver; Prestressed Concrete Fabricator: Prestressed Concrete of Colorado, Denver.

Architect Leon Brin cites 'acoustic comfort' as a 'sound' reason why prestressed concrete was used in this Denver apartment

The only thing we've added to Mr. Brin's remarks, quoted below, are italics.

"My apartment owners know their tenants are demanding two features: generous balconies to accommodate their outdoor living requirements, and a soundproof structure.

"In this 20-unit apartment, the double cantilever balcony is easily achieved with the prestressed concrete deck. *Further, the deck and the concrete topping eliminate the troublesome floor to floor sound transmission to provide tenants with the acoustic comfort they demand.*

"In addition, the deck becomes the scaffolding for the brick masons to work on each floor. The steel balcony railing is readily attached to the balcony angle iron fascia. (See detail above). With masonry bearing walls and the prestressed concrete deck *the structure is fireproof with no additional treatment required.*

"The exposed tee sections provide an interesting beam effect within each room as well as from the exterior. Floor to floor heights were actually reduced 8 to 10 inches by using 7 feet 4 inches to the bottom of the tee and 8 feet to the deck. *Weather had no effect upon the erection or quality of the deck which was placed quickly and directly.*

"This construction has worked out so satisfactorily that work is about to begin on a similar apartment building containing 36 units."

Roebling has been a strong partisan for prestressed concrete since its introduction into this country some fourteen years ago. The knowledge and experience gained from this activity puts us in the favorable position of being able to share information and data on prestressed concrete's different phases with you.

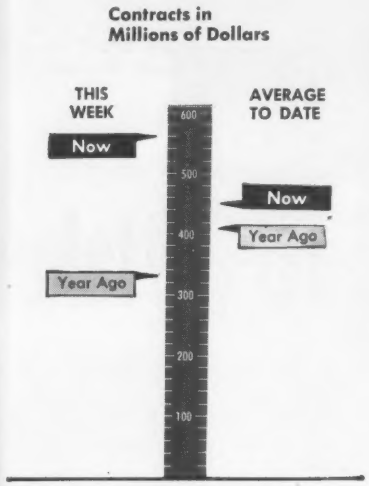
Please do not hesitate to ask us about whatever particular aspect concerns or interests you. It may be design methods, tensioning details or information on the finest prestressing wire and strand available, as manufactured by Roebling. Just write Roebling's Construction Materials Division, Trenton 2, New Jersey.

ROEBLING

Branch Offices in Principal Cities
John A. Roebling's Sons Division
The Colorado Fuel and Iron Corporation

Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

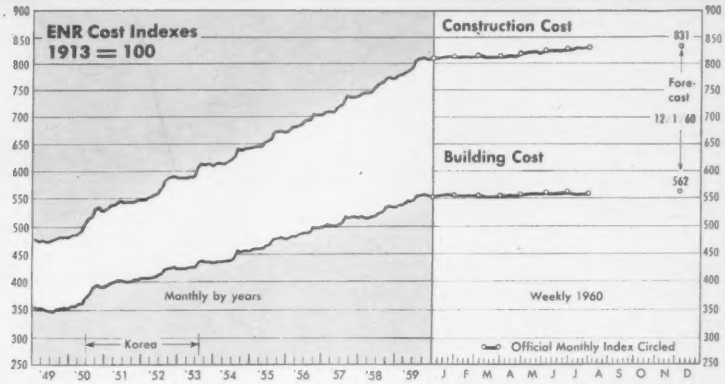
Contracts Awarded In 50 States By Type	This Week	Cum. 31 wks 1960	Chge '59-'60 %
	millions		
All Heavy Construction	$561.7	$13,928.8	+ 9
By Ownership			
PRIVATE	207.5	7,424.0	+19
PUBLIC	354.2	6,504.8	− 1
State & Municipal	312.5	4,977.5	+ 8
Federal	41.7	1,527.3	−22
By Type of Work			
PUBLIC			
Waterworks	9.6	297.4	+10
Sewerage	13.0	368.7	− 9
Bridges*	14.9	469.6	+32
Highways	79.0	1,998.1	+ 3
Earthwork, Dams & Waterways	18.6	496.3	−14
Buildings:			
Excl. Housing	54.3	1,463.6	−12
Housing	31.2	389.2	−18
Unclassified	133.7	1,023.3	+13
PRIVATE			
Buildings:			
Mass Housing	131.1	3,751.2	+32
Commercial	41.2	1,494.2	+ 7
Industrial	31.5	1,617.8	− 2
Unclassified	3.6	559.4	+80

* Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of July 28	Cum. 30 wks 1960	Chge '59-'60 %
	millions		
Corporate Securities	$ 61.4	$1,788.8	−24
State and Municipal:			
All Except Housing	145.1	4,082.0	+9
Housing	....	182.2	+142
Federal Loans	0.2	106.1	+21
Federal Aid	....	2,717.8	+15,000
Total Nonfederal	$206.7	$8,876.9	+42
Federal Appropriations:			
Projects in U.S.	$177.7	$1,317.1	+622
Outside U.S.	....	157.8	+10,350
Total New Capital	$384.4	$10,351.8	+61



ENR INDEXES (1913=100), 20-cities' average	Week of July 28 1960	% Change from June 30 1960	% Change from July 30 1959
Construction Cost	830.18*	+0.1	+2.3
Building Cost	561.21*	−0.05	+1.2

* Official Monthly Index for August, 1960.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

This Month . . .

WAGE RATES, 20-cities' average	August 1960	% Change from July 1960	% Change from August 1959
Common	$2.734	+0.4	+4.4
Skilled (average 3 trades)	4.063	+0.3	+4.1
Bricklayers	4.305	+0.9	+3.7
Structural Ironworkers	4.076	0	+4.0
Carpenters	3.808	0	+4.5
Equipment operators (average three types)	3.695	+0.8	+4.8
MATERIAL PRICES, 20-cities' average			
Structural Steel (average 3 mills), per cwt	5.50	0	0
Lumber, 2x4 Fir, per M fbm	118.46	−0.8	−5.7
Lumber, 2x4 Pine, per M fbm	109.37	−1.3	−1.2
Cement, bulk, per bbl	4.01	0	+1.4
Sand, per ton	2.362	−4.3	−4.3
Ready-mixed concrete, per cu yd	14.30	0	0
Gypsum sheathing, ½″x2′x8′, per Msf*	62.62	0	0
Fiber board sheathing, ½″ sq. ed., per Msf*	71.99	+0.5	+0.5
Mineral wool insulation, 3′ batts, per Msf*	68.034	+1.0	−1.7
Crushed stone, 1½″, per ton, CL	2.615	−2.0	−3.0
Concrete blocks, sand/gravel, 8″x8″x16″, each*	0.2301	−1.0	0

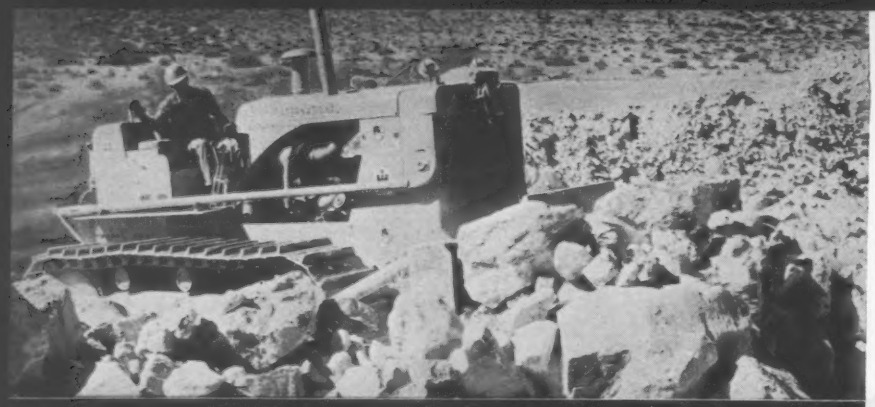
Latest Month . . .

	July 1960	June 1960	July 1959
Brick, common per M	40.90	0	0
Lime, hydrated finishing, per ton, CL	38.68	−1.1	−1.2
Structural clay tile, 3x12x12″, per M, 2,000 up*	188.20	0R	+2.5
Vitrified clay sewer pipe, std 12″, per ft	1.435	−0.07	+5.8
Concrete sewer pipe, 12″, per ft	1.419	+0.2	+8.5

* Delivered, trucklots R: July Revised

ENR INDEX REVIEW

	Construction Cost		Building Cost		Volume	
1959	1913=100	1949=100	1913=100	1949=100	1913=100	1949=100
Jun	794.36	166.53	548.35	155.87	650	188
July	805.89	168.95	551.74	156.84	671	194
Aug	810.35	169.93	554.31	157.60	509	147
Sept	811.76	170.18	555.88	158.01	545	158
Oct	810.60	169.94	555.40	157.88	415	120
Nov	808.98	169.60	554.19	157.53	509	147
Dec	807.85	169.36	552.30	157.10	436	126
1959 Average	**796.91**	**167.07**	**547.82**	**155.72**	**540**	**156**
1960						
Jan	811.84	170.20	554.40	157.57	432	125
Feb	812.73	170.38	555.43	157.92	486	140
Mar	813.26	170.49	555.16	157.81	533	154
Apr	814.78	170.81	555.23	157.83	696	201
May	822.58	172.45	557.66	158.52	612	177
June	826.64	173.30	559.93	159.16	785	227
July	829.33	173.86	561.47	159.60	683	197
Aug	830.18	174.04	561.21	159.53	...	...



Even moving a blade-full of sh rock around the curve, there's no hesi tion, no sluing to spill the load. T TD-25's operator has separate speed co trol of each track to get full-capaci performance, full time. And only the ne TD-25 has the power plus of the direc start, turbocharged DT-817 Internationa engine—that delivers 230 high-torque hp

HOW POWER-STEERED, POWER-SHIFTED . . . TD-25 takes ov

—on California mining operation

Even before all the blast dust has settled, this International TD-25 is slamming tons of shot-rock from the benches, so trucks can resume hauling to the processing plant. Then, at this gypsum mine in California, the "25" takes over the "shovel-feeding" chore—dozing full blades of rock upgrade, downgrade, and 'round the curves, to help keep the big dippers swinging full. And in between times, the "25" takes over its third tough project: benching new haul road around mountain slopes!

Three slam-bang rock operations to handle—it's a made-to-order situation for the Planet Power-steered TD-25!

"Dead-track drag" eliminated! You don't brake a track and "half-kill" your pull-power to turn, as you do with king-sized clutch-steered crawlers. With Planet Power-steering you simply change the speed of one TD-25 track—on-the-go, and with 2-finger ease! Around comes the fully-loaded TD-25—with "live" power on both tracks and both tracks pulling. Load-limiting "dead-track drag" is eliminated!

And combined, on-the-go Hi-Lo power-shifting lets you match power to load, instantly—forward or reverse. Just shift one track to high range—the other to low—to do slope-hugging, full-bite benching, or to operate straight ahead with off-center loads!

The "25" is platformed on new 7-roller tracks with double-box-beam frames. The design provides super undercarriage strength for slam-bang conditions—strength to match the full effort of the direct-start, high-torque DT-817 International Diesel engine.

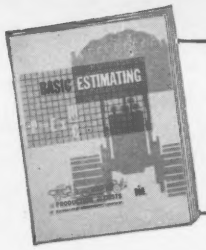
Power-steer and power-shift the TD-25 with king-sized loads. Measure the bonus capacity you get with exclusive Planet Power-steering and Hi-Lo power-shifting. See how this control combination enables you to outearn other big rigs up to 50%. Then measure what it means to get this double-barreled advantage *only* in the TD-25—and as standard equipment *to boot!* Let your International Construction Equipment Distributor demonstrate.

International Harvester Co.
180 North Michigan Ave.
Chicago 1, Illinois

A COMPLETE POWER PACKAGE

International® Construction Equipment

"Boulder-dozing" after blasting— The TD-25 does some "blasting" itself to move "big-as-a-house" hunks of rock aside. Heavy-duty TD-25 Dura-Rollers defy the rock-dozing "grind"—with the industry's thickest shells to prevent flexing—positive grit exclusion—and 1,000-hr.-interval lube capacity!



Here's your 76-page cost and production estimating book—newest, most authentic and complete guide for estimating material-moving costs—and for selecting equipment combinations for top profits, *anywhere!* See your International Construction Equipment Distributor!

kesover three slam-bang rock jobs

Giffels and Rossetti—Architects • Engineers
O. W. Burke Company—General Contractor
The Stanley-Carter Co.—Heating & Air Conditioning

70,000 feet of time-tested galvanized **steel pipe** will serve Detroit far into the 21st Century

In the new multi-million dollar Cobo Hall and Convention Arena in Detroit's civic center, galvanized *steel pipe* is used for water, drainage and vent systems. The reasons why?

1: Longer lengths of *steel pipe* meant fewer joints with commensurate installation economies. 2: Water, drainage and vent lines of *steel pipe* required less support. 3: Threaded joints on *steel pipe* made plumbing and aligning easier and quicker. 4: Low cost, durable *steel pipe*, with its built-in strength, will efficiently serve the millions of people who will use these quarters for conventions, exhibits and spectator sports for generations to come.

Steel pipe remains the first choice in outstanding buildings throughout the country. It is dependable, reliable and low in cost for gas, air and water transmission, fire sprinkler systems, electrical conduit, structural uses, radiant heating, snow melting, refrigeration and cooling . . . and it has always been easily and readily available anywhere in the country.

90% of domestic water, drainage and vent lines require horizontal suspension. Because steel pipe is easy to install and needs less support, significant economies are effected in installation.

STEEL PIPE IS FIRST CHOICE

- Low cost with durability
- Strength unexcelled for safety
- Formable—bends readily
- Weldable—easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

Insist on MADE IN USA Steel Pipe

60-9

COMMITTEE ON STEEL PIPE RESEARCH
150 East Forty-Second Street, New York 17, N.Y.

U.S. Promoter Beats Congo Drum

- **L. Edgar Detwiler pockets $2-billion agreement for power and resources development.**
- **All that's needed is financing, but money sources appear to be ignoring the message.**

A U.S. businessman-promoter, from a point in the new Republic of the Congo, fired a $2-billion arrow into the air. If it has landed, no one knows where.

But if the man with the bow, L. Edgar Detwiler, aimed in the general direction of Washington, D. C., with its plethora of world-aid treasure chests, he missed. U.S. government officials in a handful of agencies concerned with foreign economic matters are politely staying away in droves from the New York City promoter's 50-year, $2-billion development plan for the Congo (ENR July 28, p. 15).

And when Congo Premier Patrice Lumumba arrived in the U.S., he backed off from his earlier enthusiasm. He said there was no contract, "only an agreement in principle." Meanwhile, back in Leopoldville, the Congolese Finance Ministry said the agreement, though signed by Mr. Lumumba, was not a commitment of the Congolese government to Mr. Detwiler's Congo International Management Corp. It is subject to ratification by the Congolese Parliament this fall (a point Mr. Detwiler and Premier Lumumba concede).

Under the announced agreement, CIMCO would develop the power and mineral resources of the country as the government's operator. It would not own the rights but it would arrange financing and provide the management and technical supervision. The company in return would get a portion of the profits earned from the sale of minerals and finished products.

The big trick, of course, will be the financing. It's assumed that it would come from companies interested in developing the Congo's rich mineral resources, which would be the collateral.

So far the needed shower of money hasn't rained from either private sources or the government. Mr. Detwiler spoke to African-area and economic experts in Washington before traveling to the Congo, but these officials emphasize they gave him no encouragement, and warn that any aid that eventually might be forthcoming from the government would have no connection with Mr. Detwiler's proposals.

Some government officials are a bit miffed at Mr. Detwiler. "He did not play it quite straight from the beginning," they say. He talked of several hydroelectric power and mine development projects, but gave no hint of the vast network of other projects later revealed—roads, schools, hospitals and housing. Nor did he tell them he was going to take an actual contract document to the Congo for Mr. Lumumba's signature, these sources report.

They do concede, however, that the projects not originally mentioned by Mr. Detwiler may have been more or less forced on him by the Premier.

This, however, is the only concession these officials are willing to grant now. They feel Mr. Detwiler hasn't made much of a record with his other African ventures—projects either in negotiation or on the dotted line in Guinea and Ghana. Not a single shovel has been put to breaking ground on any of them. He does have an iron mine operating in Liberia.

If Mr. Detwiler has failed to obtain the support of officials in Washington, he has succeeded in bringing together as board members of CIMCO some of the top engineering, legal and financial talent in the U.S.

Among the 10 board members: A. Gordon Lorimer, former chief architect for the City of New York; David Sloan, vice president of Gibbs & Hill; Maurice N. Quade, senior partner of Parsons, Brinckerhoff, Quade & Douglas.

Mr. Lorimer, who was associated with Mr. Detwiler in the Liberian iron ore project, will handle the large-scale planning of an architectural nature. This would not come for some time, however—not until after heavy engineering and construction work is completed. Such projects would include railroads, harbors, highways and bridges. The last two items would come only as needed in the development of mining projects. Mr. Lorimer credits Mr. Detwiler with courage and vision in sensing that partnerships with governments of underdeveloped countries must replace the outmoded arrangements of the colonial era.

Mr. Quade's firm is in the group to furnish any engineering service or personnel that may be needed. He points out that CIMCO is focused on long-range development and is not a substitute for the technicians the Congo government now requires from the UN and the other nations of the western bloc.

Mr. Sloan says the eventual job for his firm would be to investigate feasibility of certain types of projects—hydro power, transportation, ports. Once this was determined, his firm would either do the actual design work for those projects found feasible, or obtain engineering specialists in that particular field.

A spokesman for Mr. Detwiler says that presumably one of the projects that would have priority for study is the Inga Falls Dam on the Congo River. This hydro project would be the granddaddy of all power projects. As proposed three years ago, it would have a capacity equal to the combined capacity of all the hydro-power developments in the U. S. (ENR July 11, 1957, p. 62).

Somewhere along the route, the U. S. will enter the general Congo problem. The Administration feels morally and politically obliged to provide some aid. For the present, this aid will be limited by both economic doubts and budget ceilings.

The U.S. assist will come in the form of food, supplies and technical assistance from the International Cooperation Administration. ICA has a $20-million special Africa fund request pending in Congress, and if the money is voted, much of it is likely to go to the Republic of Congo.

The State Department also may ask Congress for $25 million for its Development Loan Fund.

Beyond those two fund sources, officials are wary of big chunks of economic aid. The Export-Import Bank counts itself out, because it thinks Mr. Lumumba does not want or cannot afford loans tied to dollar purchases in the U. S. The World Bank, which the Congo has not yet joined, is supplying only technicians, although it has two loans totaling $40 million in the works. These, however, were earmarked for the Belgian Colonial Administration, and are held up.

But biggest problem of all is Katanga Province, which seceded from the Congo. Katanga is the rich one. It can get along economically without the rest of the Congo, but the rest of the Congo can't live economically without Katanga, U. S. experts say.

The U.N. is now trying to relieve the tension resulting from the move.

July Contracts Top $2 Billion

Construction contracts awarded last month set a record for a July month, although the pace of new business slackened from June.

July was the fourth month this year to top $2 billion in contract awards and the third one to set a record for the month.

June, the second biggest month (on a weekly average basis) ever reported, soared to $2.9 billion. The five-week month of July 1959 scored $2.4 billion. On a weekly average basis, however, last month's contracting rate racked up a 5% gain over a year ago, though it dipped 13% below June's booming pace.

The seven-month total of $13.4 billion (also adjusted for the varying number of weeks) tops 1959 by 8%, which is only one percentage point from the midyear gain of 9%.

State and municipal projects have been edging upward each month this year. July's volume of $731 million marked a rate 2% better than June on a weekly average basis, even though June's $896 million is tops in total volume for any month this year. On a weekly average basis, July also outpaced a year ago by 6%, although the five weeks of July 1959 put that month's total at $860.6 million.

For the seven months of this year, state and municipal projects are running 5% ahead of 1959 as highways, bridges and waterworks offset lags in sewerage and public buildings. This margin is unchanged from midyear.

Federal construction fell below a year ago for six out of the seven months. July was off sharply from 1959. The 22% decline in this year's seven-month volume of federal work, offsets the gains over last year chalked up by local public agencies. It dropped the $6.2 billion in total public works 4% below a year ago, compared to only a 3% decline at the end of June.

Biggest volume of the month came from private sources, with $1 billion worth of volume registered for the fourth time on record. Though the total was 16% short of June's $1.6 billion on a weekly average basis, it topped last year's peak of $1.2 billion by 16%.

July's industrial building awards total of $295 million was the highest of the year so far, regardless of the number of weeks in the month. Last month's pace was not only 37% above June's but also 28% above one year ago. The gap from 1959 is now only 1% with industrial volume now at $16.6 billion for the seven-month period.

Cost Indexes: One Up, One Down

For the fifth consecutive month, wage boosts for common laborers push construction costs higher. ENR's 20-Cities Construction Cost Index for August is at 830.18, 0.1% higher than July and 2.3% above one year ago.

On the building cost front, lumber price cuts offset wage increases for bricklayers in several cities, and dropped ENR's 20-Cities Building Cost Index for August to 561.21. (Both indexes are based on 1913 as 100.) Although the Building Cost index is 0.1% below July, it tops August 1959 by 1.2%. The Building Cost Index felt the lumber price cuts more than the Construction Cost Index because the former weights wages less heavily.

The Construction Cost Index, although higher for August than the July index, is below its record. On July 14, it set an all-time high of 830.53, reflecting a 20-cent hourly wage boost for common laborers in Los Angeles under a wage reopener clause in an existing contract. Since then cuts in the price of lumber trimmed the average.

The past month saw a virtual windup of the 1960 round of labor negotiations in the 20 U. S. cities covered by ENR's indexes. A new contract granting a 30-cent wage and fringe benefits boost ended a long bricklayers' strike in Boston. New pacts also boosted bricklayers' wages 20 cents an hour in Seattle and 10 cents an hour in Dallas, while a deferred increase boosted San Francisco bricklayers' wages 15 cents an hour.

Engineering Construction Contracts for July

Thousands of Dollars (000 omitted)

	July, 1960								—U. S. Cumulative—			
	New England	Middle Atlantic	South	Mid-West	Mississippi to Rockies	Far West*	Total U. S.	% Change '59 to '60 (av wk)	1960 (30 weeks)	1959 (31 weeks)	% Change '59 to '60 (av wk)	Canada July 1960
Public Works, Total	44,686	141,650	179,202	144,521	189,264	225,214	924,537	− 5	6,150,533	6,588,531	− 4	64,465
Waterworks	774	22,464	2,986	2,619	5,656	16,475	50,974	+27	287,901	270,033	+10	876
Sewerage	3,845	6,676	12,810	9,890	11,958	19,611	64,790	+ 4	355,777	405,285	− 9	2,771
Bridges	625	12,818	10,854	8,080	13,377	7,288	53,042	+49	453,415	347,940	+35	4,522
Earthwork, waterways	964	2,201	8,139	5,718	13,844	18,203	49,069	−58	477,729	576,535	−14	2,625
Streets and roads	12,892	19,935	62,610	74,557	79,894	63,324	313,212	+ 9	1,918,987	1,940,310	+ 2	12,448
Buildings: Residential	4,623	22,334	9,441	9,142	4,774	5,476	55,790	−17	357,977	477,041	−22	1,677
Other	13,134	29,308	45,605	27,605	41,849	61,063	218,564	− 6	1,409,029	1,667,345	−13	10,470
Unclassified	7,829	25,914	26,757	6,910	17,912	33,774	119,096	− 9	889,718	904,042	+ 2	29,076
State & Municipal	35,396	112,373	127,397	128,333	153,081	174,885	731,465	+ 6	4,664,966	4,619,595	+ 4	31,235
Federal	9,290	29,277	51,805	16,188	36,183	50,329	193,072	−32	1,485,567	1,968,936	−22	33,230
Private, Total	86,430	264,321	221,784	108,070	273,849	126,096	1,080,550	+16	7,216,527	6,218,302	+20	72,963
Bridges	.....	.....	.....	.....	.....	.....	.....	.....	1,499	7,668	−80	.....
Buildings: Industrial	12,057	24,148	126,029	25,128	88,329	18,873	294,564	+28	1,586,316	1,657,672	− 1	39,748
Mass housing	44,634	176,905	49,031	30,949	98,932	48,789	449,240	+11	3,620,137	2,849,588	+31	7,653
Other	28,823	62,992	43,695	45,846	57,516	48,139	287,011	+31	1,453,008	1,393,063	+ 8	20,337
Unclassified	916	276	3,029	6,147	29,072	10,295	49,735	−34	555,567	310,311	+85	5,225
Total, July, 1960—4 weeks*	131,116	405,971	400,986	252,591	463,113	351,310	2,005,087	+ 5	.....	.....	....	137,428
Total, June, 1960—5 weeks*	146,558	831,442	398,050	369,267	615,736	523,621	2,884,674	....	.....	.....	....	166,996
Total, July, 1959—5 weeks*	137,305	423,960	412,806	421,074	475,726	509,264	2,380,135	....	.....	.....	....	172,542
Seven Months—1960 (30 wks)*	800,101	3,140,735	1,948,977	2,064,810	2,998,114	2,414,323	.....	....	13,367,060	.....	+ 8	1,167,950
Seven Months—1959 (31 wks)*	773,773	2,820,784	2,147,132	2,178,236	2,601,621	2,285,287	.....	....	.....	12,806,833	....	836,667
% Change '59 to '60 (av wk)	+7	+15	−6	−2	+19	+9	.....	....	.....	.....	....	+40

* Includes Alaska & Hawaii contracts

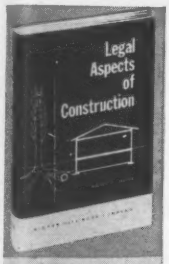
SPECIAL INTRODUCTORY OFFER

Take ANY ONE $ for only 1.00

VALUES UP TO $17.50

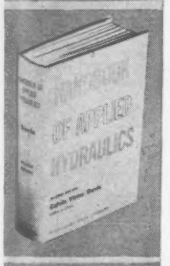
To NEW MEMBERS of the

Civil Engineers' Book Club

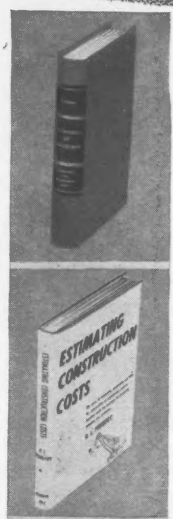


Legal Aspects of Construction by W. Sadler. Makes clear rights and liabilities of contractor, designer, owner, and financier.
Publisher's Price, $8.50 Club Price, $7.25

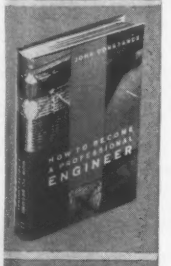
Foundations of Structures by C. Dunham. Provides sound help on every important phase of foundation engineering.
Publisher's Price, $10.50 Club Price, $8.95



Handbook of Applied Hydraulics Editor-in-Chief, C. Davis, 2nd Ed. Data and methods covering all phases of hydraulic engineering.
Publisher's Price, $17.50 Club Price, $14.95



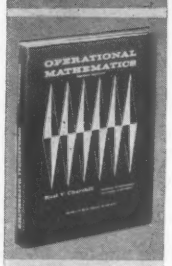
Estimating Construction Costs by R. L. Peurifoy, 2nd Ed. Techniques and data to help you make accurate estimates.
Publisher's Price, $11.50 Club Price, $9.80



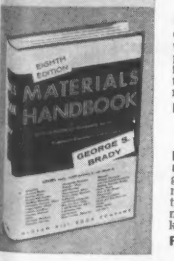
How to Become a Professional Engineer by J. Constance. Complete instructions on how to get your Professional Engineer's License easily.
Publisher's Price, $5.50 Club Price, $4.70

Construction Planning, Equipment, and Methods by R. L. Peurifoy. Shows you how to plan and carry out a project.
Publisher's Price, $9.50 Club Price, $8.10

Soil Mechanics, Foundations, and Earth Structures by G. T. Tschebotarioff. Gives principles and practices.
Publisher's Price, $8.50 Club Price, $7.25



Operational Mathematics by R. Churchill. 2nd. Ed. Presents theory and applications of Laplace and other transforms.
Publisher's Price, $7.50 Club Price, $6.40



Materials Handbook by G. Brady, 8th Ed. Provides helpful facts on properties, uses, sources for thousands of natural and synthetic materials.
Publisher's Price, $13.50 Club Price, $11.50

Management for Engineers by R. Heimer. A guidebook of practical management methods that provide the engineer with management know-how.
Publisher's Price, $6.95 Club Price, $5.90

How many of these books do you wish you had at Club savings?

Select one for JUST A DOLLAR! Choose from *Foundations of Structures, Estimating Construction Costs, Materials Handbook,* and seven other valuable books . . . your introduction to membership in the *Civil Engineers' Book Club.*

If you're missing out on important technical literature—if today's high cost of reading curbs the growth of your library—here's the solution to your problem. *The Civil Engineers' Book Club was organized for you,* to provide an economical technical reading program that cannot fail to be of value to you.

All books are chosen by qualified editors and consultants. Their thoroughgoing understanding of the standards and values of the literature in your field guarantees the authoritativeness of the selections.

HOW THE CLUB OPERATES

Every second month you receive free of charge *The Civil Engineers' Book Bulletin* (issued six times a year). This gives complete advance notice of the next main selection, as well as a number of alternate selections. If you want the main selection you do nothing; the book will be mailed to you. If you want an alternate selection . . . or if you want no book at all for that two-month period . . . notify the Club by returning the form and postage-paid envelope enclosed with your *Bulletin.*

SAVES YOU MONEY AND THE BOTHER OF SHOPPING

We ask you to agree only to the purchase of three books in a year. Certainly out of the large number of books in your field offered in any twelve months there will be at least three you would buy anyway. By joining the Club you save yourself the bother of searching and shopping, and save in cost about 15 per cent from publishers' prices.

Send no money now. Just check any two books you want—one for only $1.00 and one as your first Club selection—in the coupon below. Take advantage of this offer *now,* and get two books for less than the regular price of one.

THIS COUPON WORTH UP TO $16.50

The CIVIL ENGINEERS' BOOK CLUB, Dept. ENR-8-4
330 West 42nd Street, New York 36, N. Y.

Please enroll me as a member of the Civil Engineers' Book Club. I am to receive the two books I have indicated below. You will bill me for my first selection at the special club price and $1 for my new membership book, plus a few additional cents for delivery costs. (The Club assumes this charge on prepaid orders.) Forthcoming selections will be described to me in advance and I may decline any book. I need take only 3 selections or alternates in 12 months of membership. **(This offer good in U. S. only.)**

Check 2 books; #1 for dollar book and #2 for Club selection

- ☐ Legal Aspects of Construction, $7.25
- ☐ Foundations of Structures, $8.95
- ☐ Handbook of Applied Hydraulics, $14.95
- ☐ Estimating Construction Costs, $9.80
- ☐ How to Become a Professional Engineer, $4.70
- ☐ Construction Planning, $8.10
- ☐ Soil Mechanics, $7.25
- ☐ Operational Mathematics, $6.40
- ☐ Materials Handbook, $11.50
- ☐ Management for Engineers, $5.90

PLEASE PRINT

Name .....

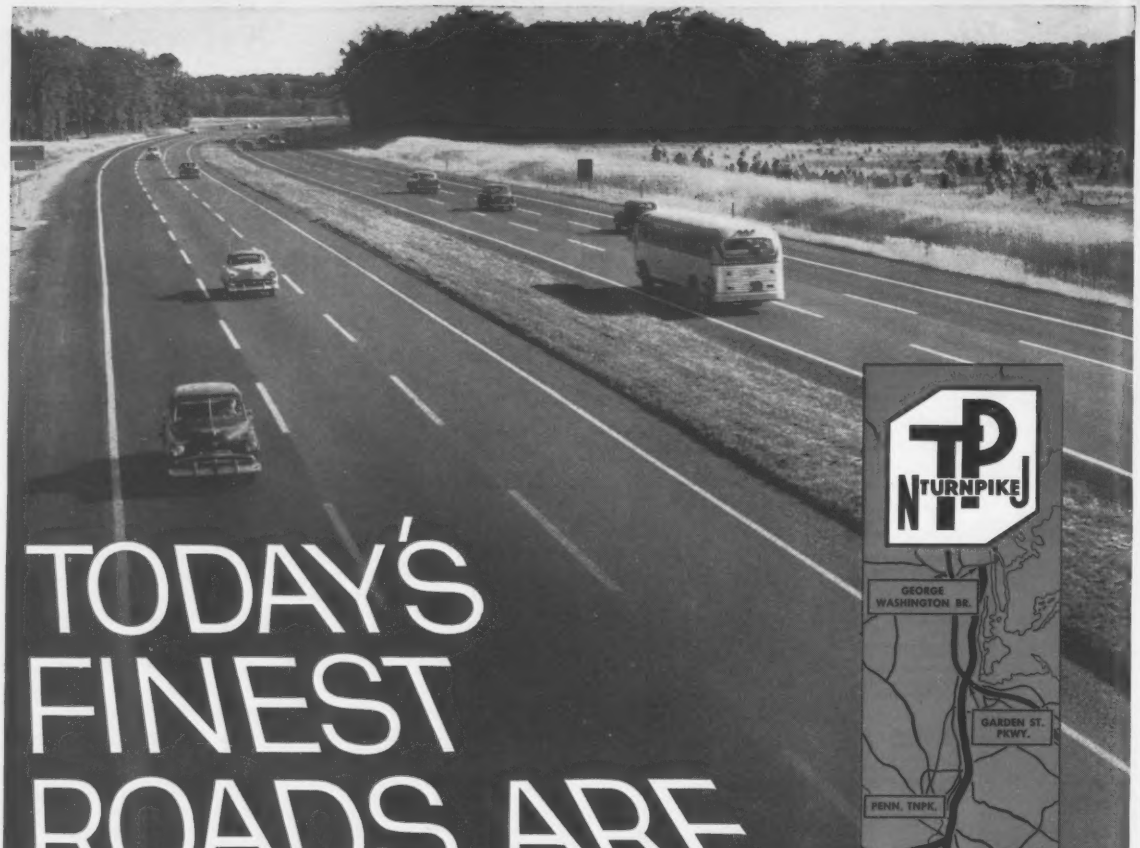
Address .....

City ..... Zone ..... State .....

Company .....

NO RISK GUARANTEE If not completely satisfied, you may return your first shipment within 10 days and your membership will be canceled. ENR-8-4

AIL COUPON AT RIGHT TODAY



TODAY'S FINEST ROADS ARE MADE WITH ASPHALT

FROM ESSO STANDARD

Asphalt furnished by Esso was used in the construction of the New Jersey Turnpike and saved more than $46,000 per mile over slab type pavement – and every year will bring added savings through lower maintenance costs. Consider these advantages in your road building plans:

Unsurpassed quality – Asphalt produced by Esso is specially refined to give pavements integral strength and flexibility – with maximum strength to resist heavy axle loads and extremes in temperature.

Faster construction time – Roads paved in ribbons are completed faster... do not require curing time, forms, and curing equipment.

Less capital tied up – Contractors can meet faster construction schedules and obtain contract payments more quickly.

Less interruption of traffic – On new construction as well as in resurfacing or widening of old roads, traffic can be routed over finished work without delay... for greater safety to workmen and motorists.

Any road, street or turnpike, paved with Asphalt costs less to build . . . costs less to maintain . . . gives a smoother, quieter ride . . . gives more miles, safety and comfort for the taxpayer's dollar over slab type pavements. For more information write: Esso Standard, Division of Humble Oil & Refining Company, 15 West 51st Street, New York 19, New York.

ESSO

ASPHALT PRODUCTS

In Industry after Industry..."ESSO RESEARCH works wonders with oil"

Unions Undaunted by Stiff Bargaining

- **Two Boston trades end long strike with 60-cent package, but a New York trade rejects 80 cents.**
- **Milwaukee crafts accept two-year 30-cent pacts while western boilermakers do six cents better.**

Long-term labor contracts that mean progressively higher wages have ended a nine-week strike of Boston bricklayers and averted construction tie-ups in the Milwaukee metropolitan area.

But steamfitters in New York City, where contractors are now freed of the threat of a sand and gravel stoppage, last week rejected a three-year, 80-cent offer from the mechanical contractors and remained on strike, along with the sheet metal and asbestos workers, who have been out since July 1.

In San Francisco, a plasterers' strike went into its fourth week with continued demands for 25 cents a year for three years. And no settlement was in sight for a month-long strike of Dallas glaziers and roofers who are asking for three-year packages of 50 and 65 cents.

The Boston strike came to an end when the bricklayers Local 3 and the stone, marble and terrazzo workers Local 9 ratified a three-year, 60-cent pact.

Under the new contract, union members received a 25-cent hourly wage increase retroactive to May 1, raising their scale to $4.05 an hour, and five more cents to the pension fund, retroactive to July 5, making the total pension contribution 15 cents. Next May 1, they will get 15 cents for a vacation fund and the following May a final wage increase of 15 cents. The old 15-cent welfare contribution is continued.

The strike against the Building Trades Employers Association and the Associated General Contractors of Massachusetts had tied up an estimated $20 million in construction projects in the metropolitan Boston area. Other bricklayers locals that had also struck in several suburban areas settled earlier for 52-cent packages over three years.

New contracts with 12 of the Milwaukee trades followed the pattern of a 16-cent increase in wages and fringe benefits this year and a 14-cent wage increase next year in two-year contracts. Plumbers and steamfitters, for example, won a 10-cent wage boost, giving them a scale of $3.86, retroactive to June 1, plus three cents more for welfare and three more for pensions. Next year, they will get another pay boost of 14 cents.

The new contracts, however, have already threatened trouble from two trades that are getting smaller increases under three-year contracts they negotiated last year. Operating engineers have threatened to take a strike vote if some adjustment is not made, and the teamsters are discussing the problem.

Four of the trades have agreed to two less run-of-the-mill provisions that are expected to be beneficial to the industry.

The lathers and plasterers will have three cents an hour deducted from their first-year raise to help finance the Milwaukee Area Bureau for Lathing and Plastering, to which employers already contribute three cents an hour. The Bureau promotes the use of lath and plaster.

An overtime provision in the plumbers and steamfitters contracts cuts the overtime rate for repair and maintenance work in industrial plants on Saturdays from the present double time to time and a half. This is effective only to next May 1, but can be renewed if it brings an expected increase in work.

Overtime is also playing a role in the New York City strike situation with steamfitters.

The mechanical contractors, who employ over 75% of the city's steamfitters, have been the victims of a month-long holdout, which they claim is the result of power politics within a factionally divided union. They attribute the union's present power in part to create an artificial manpower shortage. The union, for example, has refused over a two-year period to admit new apprentices.

As a countermeasure, the Mechanical Contractors Association of New York has attempted to remove some of the attraction the shortage has had for the union. It just amended its constitution to ban overtime operations (now at the rate of double time) by any member except in cases of emergency specifically found to exist by a three-man board. Association members have also agreed to adhere rigidly to existing pay scales and to refrain from the payment of bonuses in competition for labor.

In its latest refusal to come to terms, the union has rejected an offer that would have given steamfitters 80 cents more in wages and fringe benefits over the next three years. The offer would have raised the present scale of $4.50 an hour to $5.00 an hour during the first two years, added 10 cents to vacation pay the second year and 14 cents to pension accounts the third year. Additional fringes totaling 9% would have continued, making a total wage of $5.84 an hour.

The union has also objected to elimination of Lincoln's Birthday as a holiday and has rejected a proposal that partial threading and cutting of pipe be allowed at the jobsite.

Out on strike with the steamfitters are the sheet metal and asbestos workers. Only bright spot on the industry's labor front during the week was AFL-CIO intervention to halt an interunion waterfront dispute that had threatened to shut off the supply of sand and gravel when teamsters refused to cross the picket lines of a maritime union.

Meanwhile, bargaining in other areas has produced these results:

- Boilermakers in 11 western states have agreed to a two-year contract that calls for a two-step, 25-cent wage increase, plus an additional 11 cents in fringe benefits. First increase pushed the union scale to $3.85 on July 19.
- Glaziers in Springfield, Holyoke and Greenfield, Mass., won a 25-cent wage increase spread over two years after a four-day strike.
- Carpenters, millwrights and pile drivers in Houston have accepted a two-year contract that adds 12½ cents to wages this year and 10 cents next year.
- Sacramento, Calif., glaziers, reopening a contract for wages only, won a 16-cent increase this year, seven cents next January and 25 cents next July.
- Nevada electrical workers in Local 375 have signed a two-year contract for a 60-cent wage increase—25 cents now, 10 cents next January 1 and 25 cents on June 1, 1961. Their old scale was $4.20.

Last week's developments, however, did include a significant union concession in Charleston, W. Va.

Members of electrical workers Local 466 agreed to forego, when working on projects in the county's $20-million school building program, a 10-cent wage increase negotiated last May.

School officials feared that new wage increases might jeopardize some phases of the program.

Union Turns to Politics

One of the international building trades unions—the Sheet Metal Workers' International Association—plans to enter the forthcoming political campaign "swinging with both hands."

It has established its own non-partisan political program, known as P.A.L.—Political Action League. Its guns are already trained on those who voted for the Landrum-Griffin bill.

Unlike the AFL-CIO's Committee on Political Education, P.A.L. will limit its interest to issues affecting the sheet metal workers. But like COPE, its four-level operation will include fund raising, political education, voter registration and getting out the vote on Election Day.

"The Sheet Metal Workers' Union is tired of broken promises from the politicians," union president Edward Carlough explains, "and we are tired, too, of a labor legislative program that sacrifices its precious energy on non-labor objectives."

P.A.L.'s twin objectives are the election of only those candidates who have "the courage and conviction to support our objectives even when the going is tough" and the enactment of "bread and butter" legislation that meets the needs of sheet metal workers.

The big impetus for P.A.L. came from the Landrum-Griffin law, which the union calls "The Cheap Labor Bill of 1959." Not only was the bill passed by the most liberal Congress in 20 years, it says, but among those who voted for it were 16 Congressmen who had received "labor's endorsement, efforts, money and votes" and then "turned around and kicked working people in the teeth."

The union promises that everyone who voted against the bill will have its "unqualified support" in the November elections.

There is nothing new in P.A.L.'s legislative objectives, which include:

- Revision of Taft-Hartley and Landrum-Griffin with emphasis on restoration of "full" picketing rights, repeal of the mandatory injunction and right-to-work provisions, simpler recognition provisions and changes in the boycott ban.
- Modernization of the Davis-Bacon prevailing wage law to include fringe benefits in wage determinations and to extend the law automatically to all federal construction and federally assisted construction, including FHA and VA programs.

On the Landrum-Griffin issue, the sheet metal workers are worried about possible loss of jobs in fabrication shops and factories in which they work. They call the law "a license for substandard manufacturers to peddle their 'coolie' labor products to contractors" and an encouragement to "unfair contractors to purchase products and equipment normally fabricated in building trades shops from low-wage manufacturers."

UAW Questions Contracting Out

The recent resignation of William C. Newberg as president of Chrysler Corp. may lead industrial unions to seek tighter control over the contracting out of maintenance and other work by industrial concerns.

First indication has come from the United Auto Workers Union, which has already asked Chrysler for an accounting of all work contracted out for reasons other than economy and efficiency. It has also demanded that company workers be reimbursed for any pay they may have lost because of work contracted out by company officials in a position to receive personal benefit.

Late last month Chrysler announced that it had entered into a settlement agreement with Mr. Newberg "under which Chrysler will receive from Mr. Newberg profits in excess of $450,000 made by him from his interests in vender companies."

The UAW contends that the contracting out of work is one of the reasons why Chrysler employment of hourly paid workers has fallen off "more than 50%" in the last four and a half years. Its list of grievances includes the charge that "maintenance work has been contracted to outside construction companies which Chrysler workers had done and are able to do."

The union admits the "practicality and necessity" of contracting out some work. It says it never stood in the way of the exercise of this "managerial prerogative" when the motive was "obviously economy and efficiency."

But it claims it has the right to know when the motive for contracting out "is merely the personal gain of individual corporative executives."

Mr. Newberg said he believed his relationships with "vender companies" were "in the interest of the corporation and that no question of illegality or impropriety was involved."

UAW has asked Chrysler for a meeting "to discuss this over-all problem."

Labor in Brief . . .

• **High score for Kennedy**—The AFL-CIO, in a pre-convention analysis of the Presidential candidates' voting records, says that John Kennedy voted in the interests of labor on all 33 key labor issues since 1947, while Richard Nixon has cast only one "good" vote, 14 "bad" ones. The scores as labor sees them: Kennedy, 100%; Nixon, 6.7%.

• **Progress**—The joint building trades-industrial union committee wrestling with the jurisdictional conflict between the two groups says there is "considerable area of agreement" and that future meetings will be productive. Next meeting is August 10.

• **Situs picketing**—Lloyd Mashburn, general president of the lathers union, appeared before the Republican platform committee as spokesman for the building trades and tried unsuccessfully to get a plank supporting reversal of the Denver Building Trades case. All he got was a pledge to recommend Taft-Hartley amendments that may be necessary to make the law "more effective or remove any inequities."

• **Workmen's compensation**—Workmen's compensation insurance rates for masonry workers in Kansas went up 26% on July 1. This was part of a general increase in insurance rates that averaged 10.3% for all classifications. The State Insurance Commissioner, in authorizing the increases, said experience data indicated insurance companies have lost more than $5 million in the past five years in paying claims in Kansas.

• **Prevailing wages**—The U. S. Chamber of Commerce, continuing its criticism of Davis-Bacon administration, charges that the U. S. Labor Department "doesn't know how to set prevailing rates." It says, for example, that the department changed the rates for four trades on a Marine Corps housing project in Quantico, Va., five times in seven weeks, confronting the contractor "with different rates every time he turns around."

• **Safety training**—In testimony taken at a New York State Labor Department hearing into the accidental death of a laborer on the Niagara Power Project, two workers said they never received any safety training. The $720-million construction job has claimed 11 lives so far.

OFFICIAL PROPOSALS

Bids: August 25, 1960

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 25th day of August, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany, New York						
Albany (Int. Tour. Rte. 787)	C 60-15	Interstate Rte. Conn. 540 (Rte. 9W to Green St.)	0.08	Demolition	$85 Plans $5	$1,500
Rensselaer (Rte. 154)	R.C. 60-54	Spring Ave: Troy-Poestenkill, S.H. 571	0.35	Asph. Conc. = 0.30 Mi. Misc. Work = 0.05 Mi.	$3,500 Plans $5	61,000
Schenectady	FATL 60-1	City of Schenectady: Crosstown Conn., Arterial Hwy. FAC 57-18 Schenectady Crosstown Conn. Pt. 2, S.H. FASH 57-20, Proj. U-323(19)	2.13	Electrical Lighting Facilities	$8,700 Plans $5	159,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 12B)	R.C. 60-140	Oriskany Falls Village, S.H. 5385 Oriskany Falls-Deansboro, S.H. 5406 Deansboro-New Hartford, S.H. 761	5.76	Asph. Conc. Ty. 2A	$9,000 Plans $5	166,000
DISTRICT No. 3, E. E. TOWLSON, District Engineer, 333 E. Washington St., Syracuse, New York						
Onondaga	FATC 60-7	City of Syracuse: Bear Street Arterial Highway, FAC 59-4, Proj. U-1154(2)	0.82	Traffic Signals	$2,000 Plans $5	36,500
Onondaga (Int. Tour. Rte. 81)	FIC 60-17	Int. Rte. 505: City of Syracuse-Oswego Blvd. (Hiawatha Blvd.-North Salina St.) Proj. I-81-2(22)	1.42	Roadside Development	$4,000 Plans $5	77,000
Onondaga (Rte. 48)	R.C. 60-143	Baldwinsville Village: S.H. 1634 Baldwinsville-State Fair Grounds, S.H. 8496	4.51	Asph. Conc. Ty. 1A	$20,000 Plans $5	361,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal Rochester 1, New York						
Monroe (Rte. 65)	FARC 60-136 PSC 6015	Clover St., S.H. 294: Elimination of Grade Crossing of the New York Central R. R. (West Shore Branch) with Clover St., Proj. S-462(3)	1.17	Asph. Conc. Ty. 1A = 1.15 Mi.; Misc. Work = 0.02 Mi.; R.R.G.S. Comp. I Beam, 3 Sp., 147.8′ 1 Plate Gird Bridge, 164.86′	$55,000 Plans $5	1,031,000
Monroe (Rte. 252)	FARC 60-137	Rochester-Scottsville, Pt. 2, S.H. 79 Ballantyne Bridge-Pittsford, Pt. 1, S.H. 8443 Proj. U-600(7)	0.52 (0.87 Acc.)	Cem. Conc. = 0.45 Mi.; Asph. Conc. = 0.46 Mi. Double Surf. Treat. = 0.23 Mi. 1 Br. Comp. I Beam 3 Sp. 224′ Tot.	$40,000 Plans $5	742,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Cattaraugus	FAC 60-13	City of Olean: East-West Art. Hwy. (East State Street: Union Street to Barry Street) Proj. U-141(6)	0.14	Asph. Conc. Ty. 2A = 0.09 Mi. Misc. Work = 0.05 Mi.	$4,000 Plans $5	70,000
Chautauqua (Rte. 5)	R.C. 60-142	Southwestern Blvd, Pts. 9 & 10, S.H. 1852 Irving-Silver Creek, S.H. 5452	2.73	Asph. Conc.	$21,000 Plans $5	355,000
Niagara	FAC 60-3 FASH 60-1	City of Niagara Falls: Hyde Park Blvd. (Jerauld Ave. to Lockport Rd.); Hyde Park Blvd. (Lockport Rd. to Birch Ave.) Proj. U-UG-1128(4)	0.43	Asph. Conc. Ty. 2A = 0.37 Mi.; Misc. Work = 0.06 Mi.; R.R.G.S. Comp. WF Beam Bridge 343′ Total span	$80,000 Plans $5	1,436,000
DISTRICT No. 6, WM. J. DENNIS, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Allegany Chemung Schuyler Steuben, Yates	R.C. 60-134	13 Various StateHighways in District 6 on Routes 13, 17, 21, 70, 70A, 228, 230, 364, 371, 408	32.84	Subsealing Cem. Conc. Pavt.	$16,000 Plans $5	296,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 30)	R.C. 60-139	Malone-Duane, Pt. 2A, S.H. 5668; Malone-Duane, Pt. 2B, S.H. 8085, Duane Center-Mountain Pond, S.H. 9007	9.08	Asph. Conc. Ty. 1A = 9.06 Mi. Misc. Work = 0.02 Mi.	$137,000 Plans $5	2,499,000
Jefferson (Rte. 12F)	R.C. 60-129	Cape Vincent-Watertown, Part 3, S.H. 1182	0.01	Asph. Conc. Ty. 1A Culv. Replacement	$1,100 Plans $5	20,000
Lewis (Rte. 26A)	FARC 60-135	Naumburg-Croghan, S.H. 1192 Lowville-Croghan, S. H. 1193 Proj. S-883(3)	1.78	1″ Asph. Conc. Ty. 1A	$22,000 Plans $5	377,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Columbia (Rte. 22)	R.C. 60-133	Austerlitz-Flatbrook-New Lebanon, Pts. 1A & 1C Flatbrook-Massachusetts State Line, S.H. 8514	0.83	9″ Cem. Conc. Pavt. 12′ & 17′	$11,000 Plans $5	197,000
Orange (Rte. 17K)	FARC 60-131	Cochecton Turnpike, Pt. 1, S.H. 113 Proj. U-483(6)	0.64 (0.34 Acc.)	9″ Cem. Conc. Pavt. 2 @ 24′ Var. = 0.80 Mi. Asph. Conc. Pavt. = 0.18 Mi.	$30,000 Plans $5	522,000
Orange (Rte 218)	R.C. 60-141	Cornwall-West Point, Pts. 1 & 2, S.H. 5498	2.99	Asph. Conc.	$9,000 Plans $5	160,000
Ulster (Rte. 28 to 9W)	FASH 60-6 S.H. 60-7	Kingston By-Pass, Part 2 (Route N. Y. 28 to Kingston-Rhinecliff Bridge Approach) Proj. FG-U-395(6)	4.32 (5.07 Acc.)	9″ Cem. Conc. Pavt. = 6.84 Mi. Asph. Conc. = 0.87 Mi.; F.C. Gran. Mat. Ty. A = 0.26 Mi.; T.C. Gr. Grav. = 0.89 Mi. Grad. = 0.38 Mi.; Misc. Work = 0.15 Mi.; 4 H.G.S. Comp. I Beam, 3 Sp, 118.5′; 2 Sp, 189′, 4 Sp., 179′; 4 Sp., 181.3′; 1 Br. Welded Pl. Gird.; 3 Sp., 404′; 1 RRGS, Prestress, Conc. Beam 3 Sp., 150.8′	$445,000 Plans $10	8,086,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 369)	FATS 60-13	Chenango Towpath, S.H. 175, Port Crane-North Fenton, S.H. 963, Proj. S-851(3)	6.69	Traffic Signs	$450 Plans $5	8,000
Schoharie	FASS 60-10	Lyker Road (Cr), Corbin Hill Road (Cr) Proj. S-577(1)	3.53	Bit. Double Surface Treat. Pavt.	$22,000 Plans $5	398,000
Sullivan (Rte. 17)	FATS 60-14	Bloomingburg-Monticello, Pt. 2, S.H. 5457 Bloomingburg-Monticello, Pt. 1, S.H. 5510 Proj. F-495(16)	11.52 (4.49 Acc.)	Traffic Signs & Delineators	$5,000 Plans $5	92,000
DISTRICT No. 10, A. M. SARR, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Nassau (Rtes. 107, 27)	FARC 60-130	Massapequa-Glen Cove, S.H. 9017; Conduit Blvd. Pts. 3, 4, & 5, S.H. 1699A, 1699B, 5701A Proj. US-377(6); Proj. U-947(21)	5.27	Roadside Development	$3,000 Plans $5	56,000
Nassau	LP 60-1 MSP 60-1 WSP 60-2	Loop Parkway Meadowbrook State Parkway Wantagh State Parkway	....	Repairs and Misc. Work at 9 Bridges	$17,000 Plans $5	293,000
Nassau & Suffolk (Rte. 27 & 110)	FARC 60-138	Conduit Blvd., Pt. 5, S.H. 5701A; Sunrise Highway Extension, Pts. 1, 2, 2A, S.H. 8474, E8438, 8470 Amityville Village: Broadway, S.H. 1633 Proj. U-UG-947(19)	4.59 (3.40 Acc.)	9″ Cem. Conc. Pavt. = 7.31 Mi.; Asph. Conc. = 0.36 Mi.; Misc. Work = 0.32 Mi.; 1 RRGS Pl. Girder 138.9′ 2 HGS Comp. Alum. 4 Sp., 220.1′, 220.1′; 1 HGS-Comp. I Beam 4 Sp., 212.5′	$375,000 Plans $10	6,839,000
Nassau & Suffolk (Rte. 24A, 107, 109, 110)	FATS 60-15	Hempstead-Farmingdale, Pts. 3 & 4, S.H. 9055, 9064; Maywood-Babylon, S.H. 53-2, 1841; Farmingdale-Maywood, S.H. 9077; Massapequa-Glen Cove, S.H. 9017; Huntington-Amityville, Pts. 1 & 2, S.H. 794, 1219; Huntington Town Line-Farmingdale, S.H. 1218 Proj. U-297(6); U-985(10); US-377(5)	23.61	Traffic Signs	$7,500 Plans $5	137,000

(Continued on following page)

(*Continued from preceding page*)

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
Suffolk	FASS 60-11	Nicholls Road, CR 97 Proj. S-571(2)	3.12	Asph. Conc. = 3.06 Mi. Misc. Work = 0.06 Mi.	$77,000 Plans $5	1,409,00
Suffolk	FALIE 60-2	Long Island Expressway, Contract 9 (Pinelawn Road to Deer Park Avenue) Proj. U-862(27)	3.47 (5.17 Acc.)	9" Cem. Conc. Pavt. = 4.34 Mi.; Asph. Conc. Pavt. = 4.20 Mi.; Misc. Work = 0.10 Mi.; 4 H.G.S. Comp. Beam 4 Sp., 274.1'; 4 Sp., 236.2'; 4 Sp., 261.3'; 4 Sp., 204.7'	$251,000 Plans $5	4,560,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956," being Public Law 627, 84th Congress, approved June 29, 1956, are are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Law, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: August 11, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 11th day of August, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name
DISTRICT No. 10, Austin M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York		
BRONX (Int. Trg. Rte. 95)	FIBETS 60-2	Interstate Route Connection 511 Brucker Expressway (Layton Ave. to New England Thruway) Section 2, Contract 2 including Throgs Neck Expressway Connection Project I-95-1(41)
Bronx (Int. Trg. Rte. 78)	FICBETS 60-3 FITNETS 60-1	Interstate Route Connection 513, Contract 4 Cross Bronx Expressway, S.H. FICBE 59-2P (Graff Avenue to Throgs Neck Blvd.) Throgs Neck Expressway, S.H. FITNE 59-1P (Layton Ave. to Longstreet Ave.) Project I-78-1(50)
Queens (Int. Trg. Rte. 78)	FICETS 60-1	Interstate Route Connection 513, Contract CE-4 Clearview Expressway, S.H. FICE 58-3, FICE 59-1, FICE 59-2, 73rd Avenue to Willets Point Boulevard and Horace Harding Expressway Connection, S.H. FIHHE 58-2 Project I-78-1(51); I-495-1(42)

Miles	Type	Deposit	Estimated Cost of Work
1.73 (5.40 Acc.)	Traffic Signs and Delineators	$7,500 Plans $5	$137,000
2.84	Traffic Signs	$5,500 Plans $5	$98,000
4.78 (11.39 Acc.)	Traffic Signs and Delineators	$16,000 Plans $5	$288,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: October 28, 1960

Hydroelectric System TMV—First Stage

INVITATION TO BIDDERS
REPUBLICA DE NICARAGUA
EMPRESA NACIONAL DE LUZ Y FUERZA MANAGUA

July 28, 1960.

The Empresa Nacional de Luz y Fuerza, an autonomous entity of the state, Republic of Nicaragua, announces that having obtained financing from the International Bank for Reconstruction and Development and from the Development Loan Fund for the construction of the first stage of the Tuma-Matagalpa-Viejo Hydroelectric System, will receive sealed bids addressed to the Construction Management of the same entity for the construction of the works described here on, until the 18 hours of the 28 of October of 1960.

Contract No. TMV-1al

Project: TMV System—First Stage

Work: Mancotal Dam and Appurtenant Works.

Bids will be publicly opened and read aloud by the Construction Management of the Empresa Nacional de Luz y Fuerza in Managua at the 10 hours of the 3 of November of 1960.

Copies of the Contract Documents, plans and specifications may be examined and obtained upon the payment of C$450.00 or US$60.00 in the following places respectively:

1) Empresa Nacional de Luz y Fuerza (Construction Management) Managua, Nicaragua.

2) Electroconsult—13 Via Cavallotti, Milan, Italy.

Contract documents, plans, specifications and general information may be examined at the following places:

1) Empresa Nacional de Luz y Fuerza. (Construction Management) Managua, Nicaragua.

2) Electroconsult S.p.A.—13 Via Cavallotti, Milan, Italy.

3) Nicaraguan Embassy in Washington, U. S. A.—1627 New Hampshire Ave. N.W.

4) General Consulate of Nicaragua in New York—1720 Ave. of the Americas, Rockefeller Center, Suite 2 200, New York, N. Y.

The said work consists of the following:

Location: Work situated 20 kilometers N. W. of the City of Jinotega, Department of Jinotega, on the Tuma River.

Description: Earth Dam and earth dike: Homogeneous type resting on andesitic foundation; maximum height: 46 meters; crest length: 812 meters; total volume: 880 000 m³.

Diversion Tunnel: 52 m² of cross section; length: 340 meters; concrete: 10 500 m³; reinforcing steel: 175 tons.

Spillway: uncontrolled "Morning Glory" type; maximum diameter: 26 meters; concrete: 400 m³ reinforcing steel: 40 tons.

Discharge Tunnel: diameter: 7.5 meters; cross section: 46 m²; length: 267 m; concrete: 3 000 m³; reinforcing steel: 200 tons.

Bids: August 26, 1960

Calumet Sag Channel Navigation Project

The Baltimore and Ohio Chicago Terminal Railroad Company will receive bids at Baltimore, Md. on August 26, 1960, at 11:00 A.M. E.D.S.T. for the construction of three railroad under-passes, two reinforced concrete railroad culverts, a highway culvert and railroad roadway embankment together with related sewer, drainage, and street work at Blue Island, Illinois, in connection with the Calumet Sag Channel Navigation Project.

The three underpasses are one two track, one three track and one four track solid floor I-Beam bridges with concrete abutments on steel piling foundations having clear span over highway roadway and sidewalk spans along both abutments.

The reinforced concrete railroad and highway culverts consist of four barrels, each having clear opening 10 feet high and 10 ft. 3 in. wide.

Plans, specifications, bidding and contract forms may be seen at the office of Mr. C. E. Zeman, Regional Engineer, Room 364, Grand Central Station, Harrison and Wells Streets, Chicago 7, Illinois, and the office of Mr. C. E. Jackman, Chief Engineer, 1302 Baltimore and Ohio Building, Baltimore and Charles Streets, Baltimore 1, Md.

Copies of these papers may be secured at the said offices by bona fide bidders by the deposit of $35.00 for each set, which will be refunded upon returning the set in good condition within one week after the award of contract.

Bids: August 25, 1960

Niagara Power Project

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR THE CONSTRUCTION OF INCIDENTAL NIAGARA POWER FACILITIES BETWEEN NORTH GRAND ISLAND BRIDGE AND TREADWAY INN IN NIAGARA FALLS, NIAGARA COUNTY, NEW YORK
SPECIFICATION NO. PA-N-23040
NIAGARA CONTRACT NO. N 29

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the construction of Incidental Niagara Power Facilities between North Grand Island Bridge and Treadway Inn in Niagara Falls, Niagara County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 25th day of August, 1960, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are: Estimated:

6,500 cu. yds.	Excavation, unclassified
2,200 cu. yds.	Embankments
100,000 cu. yds.	Foundation course crushed rock
23,150 cu. yds.	Concrete—various kinds
1,100,000 pounds	Reinforcement bars and wire mesh
140,000 pounds	Structural steel
76,250 lin ft.	Concrete curbs—various types
7,250 lin ft.	Reinforced concrete pipe --12" dia. thru 24" dia.
120 acres	Topsoiling and seeding
182 luminaries	Roadway lighting luminaries and standards and associated equipment.

The length of road to be constructed under this contract for the divided roadways is approximately 3.3 miles excluding ramps.

The work shall be completed on or before November 1, 1961.

Plans, specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-N-23040

Bids: August 11, 1960

New York State Road Work

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m., Advanced Eastern Standard Time, on August 11, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON GOWANUS EXPRESSWAY, SECTION IN, F.A.I. 512-2-8, WOODHULL STREET TO CLINTON STREET, NEW PROJECT NUMBER 1-278-1(3)9, KINGS COUNTY, WHICH CONSTITUTES CONTRACT SPEC. NO. FA-SM-165.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York.
(b) Mr. Austin M. Sarr, District Engineer, New York State Department of Public Works, 325 West Main Street, Babylon, Long Island, New York.
(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. Refunds of deposits for plans, specifications and proposals will be made *only* in case the deposits of individual sets are $10.00 or more, per Chapter 835, Laws of 1960.

The Engineer's Estimate of cost for this work is $32,450.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

Bids: August 25, 1960

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is ninethirty o'clock A.M., eastern standard time, on the 25th day of August 1960, by Henry A. Cohen, Director, Bureau of Contracts; 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

CONTRACT NO.	TYPE	NAME OF HIGHWAY & MILES
R.C. 60-162	Rehabilitating Thru Truss Bridge over the N.Y.C.R.R.	East Syracuse

DEPOSIT FOR PLANS	BID DEPOSIT	DEPT. EST.
$5	$4,500	$80,000

Any projects in this letting that are on Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956," being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the offices of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: August 25, 1960

Road Work

NOTICE TO CONTRACTORS

Sealed proposals, addressed to STATE OF MISSOURI, acting by and through THE STATE HIGHWAY COMMISSION OF MISSOURI, Jefferson City, Missouri, and endorsed "Proposal" for constructing (or improving) Route I-70, Project I-70-5(55), City of St. Louis County, will be received by the Commission until 10:00 o'clock A.M., on the 25th day of August, 1960, at the office of the Commission in the State Highway Building at Jefferson City, and at that time will be publicly opened and read.

The proposed work includes:

Furnishing and installing five (5) units of movable median, each unit consisting of 14 cars and operating equipment, together with any incidental work, on the above state road known as the Mark Twain Expressway in the City of St. Louis, Missouri.

The wage rates applicable to this project have been predetermined as required by law and are set forth in the proposal.

By virtue of statutory authority, preference shall be given to materials, products, supplies, provisions, and other articles, produced, manufactured, made, or grown within the State of Missouri, where same are of a suitable character and can be obtained at reasonable market prices in the State and are of a quality suited to the purpose intended, and can be secured without additional cost over foreign products or products of other states.

Plans and specifications may be inspected in the offices of the Commission at Jefferson City, or the District Engineer at Kirkwood, Mo. Complete instructions to bidders and proposal blanks may be obtained at the Jefferson City office.

Proposals must be on forms provided.

The right is reserved to reject any or all bids.

REX M. WHITTON,
Chief Engineer.

Bids: August 31, 1960

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, New York, as follows:

Until 11 A.M. Wednesday, August 31, 1960

For Narrows Bridge Contract No. NB-5B-Brooklyn Anchorage. The bid must be accompanied by a deposit in the amount of $250,000.00.

and

For Narrows Bridge Contract No. NB-5S-Staten Island Anchorage. The bid must be accompanied by a deposit in the amount of $250,000.00.

The contracts include excavation and concrete construction, erection of steelwork furnished by others, surface roadway construction and other incidental work.

Bidders may submit bids for either one or both anchorages separately or they may submit a combined bid for both anchorages. If a combined bid for both anchorages is submitted, separate bids for each anchorage must also be submitted, in which case the total bid deposit required shall be $500,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $50.00 which will not be refunded.

OFFICIAL PROPOSAL

RATE $2.40 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Class. Adv. Div.; Engineering News-Record, P. O. Box 12, New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: September 30, 1960

Hydroelectric System TMV—First Stage

INVITATION TO BIDDERS
REPUBLICA DE NICARAGUA
EMPRESA NACIONAL DE LUZ Y FUERZA MANAGUA
July 25, 1960.

The Empresa Nacional de Luz y Fuerza, an autonomous entity of the state, Republic of Nicaragua, announces that having obtained financing from the International Bank for Reconstruction and Development and from the Development Loan Fund for the construction of the first stage of the Tuma-Matagalpa-Viejo Hydroelectric System, will receive sealed bids addressed to the Construction Management of the same entity for the construction of the works described here on, until the 12 hours of the 30 of Sept. of 1960.

Contract No. TMV-Ibl

Project: TMV System—First Stage

Work: access road Jinotega-Casa de Maquinas "Centro America".

Bids will be publicly opened and read aloud by the Construction Management of the Empresa Nacional de Luz y Fuerza in Managua at the 10 hours of the 6 October of 1960. Copies of the Contract Documents, plans and specifications may be examined and obtained upon payment of C$ 250.00 at the:

Empresa Nacional de Luz y Fuerza—Managua, Nicaragua.

Contract Documents, plans, specifications and general information can be examined at the following places:

1) Empresa Nacional de Luz y Fuerza—Managua; Nicaragua.
2) Nicaraguan Embassy in Washington—1627 New Hampshire Ave. N.W.
3) General Consulate of Nicaragua in New York—1720 Ave. of the Americas, Rockefeller Center, Suite 2 200, New York, N. Y.

The said work will consist of the following:

Location: Department of Jinotega

Description: All weather road 18 kilometers long and its required drainage structures. Unclassified earth work: 140 000 m³. Excavation for Structures: 2 500 m³. Total length of culverts from 18" to 72": 1 200 meters. Volume of masonry work: 1 800 m³. Compacted gravel course: 37 500 m³. Concrete 18 m³. Reinforcing steel: 2 tons.

EMPRESA NACIONAL
DE LUZ Y FUERZA

Bids: See advertisement

Contracts EP-110.004 and GWB-200.014

THE PORT OF NEW YORK AUTHORITY

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract EP-110.004—Elizabeth-Port Authority Piers—Wharf Construction Berth 50—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 30, 1960.

Contract GWB-200.014—George Washington Bridge Bus Station—Sale and Erection of Structural Steel for Bus Parking Area—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, August 23, 1960.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, August 4, 1960

OFFICIAL PROPOSALS

Bids: August 9, 1960

Delaware Memorial Bridge Repainting Steelwork

DELAWARE INTERSTATE HIGHWAY DIVISION
CONTRACT NO. 41
NOTICE TO BIDDERS

Sealed proposals for repainting steelwork on the portion of the Delaware Memorial Bridge from the east abutment to the east tower, exclusive of the tower, cables and suspenders, at Deepwater Point, New Jersey, will be received by the Delaware Interstate Highway Division at the Administration Building, Delaware Memorial Bridge, near Wilmington, Delaware, until 11:00 A.M. Eastern Daylight Saving Time, on August, 1960, at which time and place said proposals will be opened and read.

Repainting shall consist of cleaning metal surfaces, spot-priming where necessary, and applying one (1) finish coat of paint to all exposed metalwork.

The approximate weight of steelwork to be painted is 9,040 tons.

Work on this project shall begin within ten (10) days after the execution of the Contract and shall be completed on or before December 1, 1960.

Monthly payments will be made for ninety (90) per cent of the work completed each month.

Bidders must submit proposals upon forms provided by the Division.

Each proposal must be accompanied by an acceptable surety bond, certified check or cash in the amount of at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the contract documents may be obtained from the Delaware Interstate Highway Division at the Administration Building, Delaware Memorial Bridge near Wilmington, Delaware, after July 19, 1960, upon payment of $10.00. Contract documents need not be returned and the above payment will not be refunded. Checks shall be made payable to Howard, Needles, Tammen & Bergendoff.

Delaware Interstate Highway Division
By: J. H. Tyler McConnell, Director

Richard A. Haber, Chief Engineer
Delaware Interstate Highway Division

July 19, 1960

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5377) will be received at White City, Oregon, until 10 p.m., Pacific Standard Time, September 7, 1960, for furnishing labor and materials for earthwork, concrete lining, and structures for Talent Lateral Rehabilitation, Station 142+50 to Station 1037+12, Talent Division, Oregon, Rogue River Basin Project. Location near Medford, Oregon. Principal items are 148,000 cu. yds. excavation; 2,432 lin. ft. furnishing and laying 30-, 36-, 42-, 48-, 54-, and 60-inch diameter precast concrete pipe; 1,010 lin. ft. furnishing and laying 18-, 24-, 30-, 36-, 42-, 48-, 54-, and 60-inch diameter concrete culvert pipe; 2,377 lin. ft. furnishing and laying 4-, 8-, 12-, and 16-inch diameter asbestos cement pipe; and other work. Completion time 550 days. For particulars, address Bureau of Reclamation, P. O. Box 937, Boise, Idaho; P. O. Box 386, White City, Oregon; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5374) will be received at Ogden, Utah, until 10 a.m., Mountain Standard Time, September 9, 1960, for furnishing labor and materials for earthwork, pipe lines and structures, West Farmington Lateral System, Weber Basin Project, Utah. Location near Ogden, Utah. Principal items are 24,000 cu. yds. of trench and structure excavation; furnishing and laying about 4.1 miles of pressure pipe line laterals, 8- to 27-inch diameters, pretensioned concrete, asbestos-cement or plate steel pipe optional; and other work. Completion time 200 days. For particulars, address Bureau of Reclamation, P. O. Box 387, Ogden, Utah; P. O. Box 360, Salt Lake City, Utah; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

EMPLOYMENT OPPORTUNITIES

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Specifications Writer. Permanent position available immediately with established Midwestern consulting firm. Architectural degree preferred. Moving expenses paid. 3-week vacation. Salary commensurate with ability. Write P-4694, Engineering News-Record.

Position is open as assistant to President of heavy engineering construction firm in the West. Give experience, education, references and salary expected. P-4822, Engineering News-Record.

Field Supervisor. Large established midwest consulting firm has permanent position in building construction supervision for thoroughly qualified and experienced man. Mechanical engineer preferred. Moving expenses paid. Send complete resume to P-4833, Engineering News-Record.

Madison, Wis. Community Planner IV. $7,668-$9,900 including longevity salary increases. Graduation from an accredited university with specialization in Civil Engineering, Architecture, Landscape Architecture or Planning and at least 4 years experience in planning. Possess ability to give high-level advice on complex problems in field of planning; in addition requires a working knowledge of platting regulations, land survey practices and precise mapping techniques, as well as of the engineering aspects of development. Registration or qualification for registration as a professional engineer and land surveyor desirable. Considerable experience in dealing with public groups essential. To be responsible for directing current planning activities of city planning department including processing of zoning changes, administration of platting regulations, and supervision of mapping section. Personnel Department, 404 City-County Building, Madison 9, Wisconsin.

Redevelopment Authority, Madison, Wis., Community Planner II $6,132 to $7,692. College graduate with major in architecture, city planning, economics, engineering, geography, landscape architecture, law, public administration, or sociology with courses in accounting plus at least two years' experience in urban renewal planning or in fiscal or accounting affairs of planning projects. Primary responsibility is to assist the director in the design of projects, formulation of research studies and surveys, and planning and controlling the fiscal and accounting affairs of the projects., U. S. Citizenship required. City Personnel Department, 404 City-County Building, Madison 9, Wisconsin.

Materials Engineer wanted by Eastern Consultant. Broad experience required in testing and control of highway materials. Some actual field supervision of highway construction desirable. Must be graduate and have or be able to get professional license. Salary commensurate with age and experience. Complete information, please, in first letter. Reply P-4895, Engineering News-Record.

Graduate Civil, Industrial or Mechanical Engineer to train for responsible position with fast growing building material firm, age 21-35. Write P.O. Box 231, West Palm Beach, Florida.

Teaching and Research Personnel, for Sanitary Engineering. Instructor to Associate Professor with commensurate salary depending on education and experience. M.S. or Ph.D preferred, but will consider man with design or research experience. Location: Mississippi State University, State College, Mississippi.

Steel Detailer—Permanent position available immediately for experienced structural or reinforcing steel detailer. Salary commensurate with ability. Contact Egger Steel Co., Box 495, Sioux Falls, South Dakota.

• *POSITIONS VACANT*

Civil Engineer (Design) Dept. of Public Works seeks civil engineers with design experience. Salary $6410 to $7760. Requires one year of experience involving the design and computation of bridges, grade separations and other equivalent structures or in aeronautical design and five additional years of pertinent education and/or experience. New York State residence is not required. For detailed information and applications write to Recruitment Unit, Dept. Civil Service, Box 41, The State Campus, Albany 1, New York.

Wanted—Skilled Mechanics. Highway Construction Firm in Southwestern Pennsylvania. Experienced in all types of diesel engines and heavy construction equipment. Send complete resume of experience and qualifications to P-4814, Engineering News-Record.

Public Works Director—Rapidly growing prestige residential suburb, 30,000 pop., Midwest. Graduate, registered Civil, with heavy street construction and maintenance experience, plus administrative experience and decision making ability, required. Will act as Ass't City Manager. $11-12,000. P-5014, Engineering News-Record.

Assistant Architect—Experienced architects wanted by Dept. of Public Works. Salary $6410 to $7760. Requires one year of architectural experience in the design and drafting room of an architect's office, including work on large buildings, and five additional years of pertinent education and/or experience. New York State residence not required. For detailed information and applications, write to Recruitment Unit, Dept. of Civil Service, Box 39, The State Campus, Albany 1, New York.

Wanted—Licensed Engineers competent to design and prepare plans for Sewage Treatment Plants. State age, experience, salary requirements, when can report, references. Positions permanent. P-4972, Engineering News-Record.

Wanted—Engineers experienced in design of Water Works, pipe laying, general construction. State age, experience, salary requirements, when can report, references. Positions permanent. P-4977, Engineering News-Record.

• *POSITIONS WANTED*

Civil Engineer-M.B.A.-26, 4 years experience, structural design, estimating, supervision. Desires career opportunity to fully utilize engineering and business training. PW-4866, Engineering News-Record.

Registered Architect With Construction Experience here and in Mexico wishes to associate with an American firm to manufacture construction equipment or building materials in Mexico. Will furnish some capital and tools. Will need capital or used tools plus technical assistance. PW-4795, Eng. News-Record.

Hydraulic Dredge Executive Civil Engineer Available. Over 20 years thorough experience in field investigation, cost estimates, management, consulting, full time or project basis. PW-4796, Engineering News-Record.

Construction Superintendent—Wide experience in industrial, institutional, and commercial field as job and general supt. Proven producer. PW-4774, Engineering News-Record.

Supt. or General Foreman—age 43—over 18 years experience highway construction supervising earthmoving equipment, excavating, drainage. Know men, methods and cost. Available at once. A-1 references. PW-4947, Engineering News-Record.

Project Management, Contract Administration, 22 yrs. experience includes, estimating, purchasing, procedures, field supervision, costs, claims. Major heavy-constr. projects U.S. & O.S. PW-4933, Eng. News-Record.

Purchasing Agent heavy construction and manufacturing 24 years experience desires permanent position. References furnished. PW-4946, Engineering News-Record.

Surveyor-Geologist—six years total experience surface and underground surveying, aeromagnetics, photo interp. Seeks resp. position with engineering or exploration company. PW-4904, Eng. News-Record.

Engineer, Surveyor, Computer, Chief of Party. Twenty years, highways, sewers, building layout, realty surveys. Middle Atlantic States. PW-4935, Eng. News-Record.

SALES REPRESENTATIVE

Large established grey-iron producer in the water works field desires additional sales personnel. Must be willing to travel. Engineering and/or college background desirable. Good opportunities for advancement. All replies confidential. Send complete resume and photograph to:

SW-4916, Engineering-News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WANTED

BUSINESS PARTNER
as
EXECUTIVE Vice-President and General Manager

Consulting Engineering and General Contracting Group

World Wide Contacts
Foreign and Domestic Projects

Sales experience Essential

Minimum investment $50,000.00

Annual income should equal investment
Send complete resume first letter

P-4350—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

GRADUATE CIVIL or ARCHITECTURAL ENGINEERS

We are looking for a young, recent college graduate, with a degree in either architectural or civil engineering, for a position in our El Paso, Texas—Estimating Department. This position provides a training ground for our future superintendents and executives. It is an excellent opportunity for a young man to obtain a desirable position with a reliable firm doing all types of construction work.

ROBERT E. McKEE

GENERAL CONTRACTOR, INC.
PO BOX 562 EL PASO, TEXAS

• *POSITIONS VACANT*

Civil Engineer; A.M. ASCE; B. CE.; M.S.C.E.; Four Years experience foundation engineering; materials testing; will relocate; Southeast. PW-4887, Engineering News-Record.

Resident Engineer. Proj. Mgr. 41. BSCE. Reg. Airport, tunnel, industrial, buildings. Domestic or foreign. PW-4948, Eng. News-Record.

ENGINEERS

OVERSEAS OPPORTUNITY

24 Month Contract on a Transmission Line in Thailand

Position open to qualified Engineer with B. S. in Electrical or Civil Engineering. Must have had experience as supervising inspector on the erection of steel transmission line towers, stringing and sagging of conductor and shield wire.

Age 30—50 preferred. Must pass physical examination and security investigation.

- Overseas Bonus
- Scheduled Overtime
- Completion Incentive
- Extra Vacation Allowance
- Medical Care and Insurance
- First Class Air Travel

Please write fully, include complete salary data to:

SVERDRUP & PARCEL ENGINEERING COMPANY

915 Olive St., St. Louis 1, Missouri

CIVIL ENGINEERS

Highway	
Bridge Engineer	$641
Plan Checker	575
Rubbish Disposal Engineer	641
Flood Control	
Design Engineer	$516

WRITE

San Bernardino County
Civil Service and Personnel
Ground Floor, Courthouse
San Bernardino, California

ENGINEERS DESIGNERS

Permanent positions with Arthur G. McKee & Company at their Cleveland offices for:

ENGINEERS, DESIGNERS, DRAFTSMEN

who are experience in any type of Steel Plant or Steel Plant Equipment design. Applications will be kept confidential.

Send detailed resume and photo to:

G. VICTOR HOPKINS
ARTHUR G. McKEE & COMPANY
2300 Chester Ave. Cleveland 1, Ohio

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS WANTED

Executive-Engineer—twenty-five years corporate engineer with major process companies, in charge of profitability analysis, cost estimating, site planning, project scheduling, contract negotiation, construction supervision and cost control. M.S. in Civil Engineering. On-time completions, good start-ups, minimum costs. PW-4942, Engineering News-Record.

Construction Supt. General Construction. PW-4482, Engineering News-Record.

Chief Estimator-Project Manager — Fully qualified to handle work from bidding stage to completion. Best of references. Building Construction, Heavy Construction, Sewage and Water Treatment Plants PW-5011, Engineering News-Record.

General or Project Superintendent, Mature, Sober, Aggressive, over 35 years experience, Bridges, Industrial foundations, cofferdams, caissons, concrete roads and grading. Now employed on multi-million expressway as general superintendent, an immediate change is desirable. Minimum $12,000.00 PW-5017, Engineering News-Record.

Engineer-Superintendent 51, CE P.E. (Penna.) good experience in all phases of general construction, highways, dams, water supply, heavy earth and rock, development housing, concrete structures. 4 years in Carribean Area. Capable of taking complete control, estimating, purchasing, hiring subs, owner negotiations. Presently self employed. U.S.A. min. $9,000, O.S. $12,000. George W. Berry, 1009 Sycamore Circle, Elmira, New York. Ph. REgent 2-0512.

Structural Engineer, P.E. Thoroughly experienced in institutional, commercial and industrial Bldg's. Desires association with architectural firm as Chief structural engineer. PW-4999, Engineering News-Record.

Prestressed Concrete — Structural Engineer seeks responsible position in S.E. United States or Florida. 11 yrs. experience in sales engineering, management, structural concrete design and testing. Have pilots rating to facilitate travel for right company. PW-4965, Engineering News-Record.

P.E.—BSCE—Lic. Bldg. Contr., Age 33; Desires responsible pos'n as Project Engr., Tech. Rep., or Sales Engr.; Exp.; 4 yrs. struct. design engr., 4 yrs. hvy. & lt. bldg. const. supv. and contracting. Fla. resident. Will relocate. PW-5002, Engineering News-Record.

Civil Engineer, M.S. in Soil Eng., 32, married; experienced in all phases of drainage, flood control, hydraulic structures, foundations, airphoto analysis and highways. Will relocate anywhere in U.S. PW-4971, Engineering News-Record.

Highway Designer, 33—10 yrs. exp. in Penna. & Ohio, currently employed on Ohio Highway Drainage. PW-4982, Engineering News-Record.

Recent M.S., administrative and structural experience, desires civil teaching position with opportunity for further study. PW-5012, Engineering News-Record.

Manager-Superintendent BSCE, Age 32. Experienced in Precast Prestressed Concrete Production & Erection as Plant Manager. Also as Superintendent in General Building Construction. Will Relocate. PW-5004, Engineering News-Record.

Chief Draftsman — 17 years experience in drafting, personnel management, organizational management and public relations in field of civil engineering. Age 37. PW-5003, Engineering News-Record.

Const. Eng.—39—field, office, estimating, & supervision in utilities, Public works, and heavy const. Seeks position with contractor in W. or S.W. PW-5000, Engineering News-Record.

Project Manager: Grad. Engr. P.E. Age 38. Experienced bid to completion in estimating, buying subs, layout, supervision, and payment, on industrial, hi-rise, hospital, treatment plant, and highway projects. Desire permanent location in New York-Philadelphia area. Available about Sept. 1. PW-5018, Engineering News-Record.

Experienced Salesman Construction and Industrial desires sales position with leading manufacturer. College graduate, married, will relocate. PW-5020, Engineering News-Record.

Engineering Executive. Wide industrial, chemical and civil experience; all phases administration and management. Organize and direct large design jobs or work in consulting and exec. asst. capacities. Proposals, reports, contracts, liaison, trouble shooting, P.E. in 5 States. PW-4725, Engineering News-Record.

• CONTRACT WORK WANTED

Contract Work Wanted. Architectural design, civil, structural, mechanical, electrical design and/or drawing. 11 types of structures. Professional engineers and architects. CWW-4577, Engineering News-Record.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS AND LEVELS

New or Rebuilt
Sale or Rent
Headquarters for REPAIRS — any make — Factory Service We will also buy your old instruments or take them in trade.
A complete line of Engineering Instruments and equipment for field or office. Write for catalog NRL 108.
WARREN-KNIGHT CO.
Manufacturers of Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

ALL MAKES
RE-BUILT REPAIRS RENT REAL EXPERTS
BUFF

69 Day St., New York WOrth 2-2797

INSTRUMENT REPAIR AND SALES
Midwest distributors for:
- Fennel Instrument Corp. of America
- Buff & Buff Mfg. Co.
- David White Instr. Co.
- Eagle Instrument Co.
- Rolatape, Inc.

PROMPT REPAIR SERVICE
FIFTY YEARS EXPERIENCE
All types Transits and Levels
INSTRUMENT SALES CO.
CHICAGO ILLINOIS RICHMOND
3947 W. Lawrence Ave. TECHNICAL DIVISION
PHONE: COrnelia 7-4646 PHONE: 2153

For results • • • use the SEARCHLIGHT SECTION

CONSTRUCTION SUPERVISION
Exclusive Training Course by mail for top positions. Publishers Manual of Advanced Construction Management. Send postcard for details.
National Schools of Construction
Est. 1952
Satsuma, Florida

LOW COST INSTALLATION AND OPERATION
CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM OR DIESEL
CAPACITY 3 TO 20 TONS
SELL, RENT OR BUY
FOR DAMS BRIDGES BREAKWATERS FILTRATION AND SEWERAGE PLANTS
FOR SPEED ECONOMY EFFICIENCY FLOOD SAFETY LABOR REDUCTION
AMBURSEN DAM CO. INC.
295 MADISON AVE. NEW YORK

FOR SALE
Engineering & Surveying Business
Established over thirty years. Fast growing New Jersey coastal town. Grossing over $60,000. Owner must sell due to development of other interests.
BO-4915, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

FOR SALE
Linkbelt Speeder HC70
TRUCKCRANE
mounted on company 3 axle carrier. Good condition.
CIAMPI BROS.
526 N. Terrace Ave. Mt. Vernon, N. Y.
MO 8-7179

2 SEA WATER DISTILLATION PLANTS
With 1 yrs. Supply of Spare Parts
1—500 Ton Capacity per day.
1—270 Ton Capacity per day.
Only operated for 1 year.
Original value $600,000.
To be sold at approx. 60% cost.
FS-4798, Engineering News Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

WANTED
CEMENT COOLER
SMIDTH OR FULLER
DRY PULVERIZED
MATERIAL COOLER
125 bbls per hour or
25 tons per hour
Can Use More Than One Unit
P.O. BOX 196
Plymouth Meeting, Pa.

WATER WORKS *FOR SALE*

3—DE LAVAL PUMP SETS, each 6000 GPM, 250 ft. head at 250 PSI DISCH., each with 1000 H.P. synchronous motor, 6900 volt (internally re-connectable for 4100, 2300 or 1330 volts)—60 cy.—3 P.H.

MOTOR STARTING & CONTROL CUBICLES with Westinghouse type F 124A cir. brkrs., disconnect, metering & other equip.

3—S. MORGAN SMITH CONE CHECK VALVES 14" dia., pneu. oper.

1—NASH ENGINEERING VACUUM PUMP PRIMING UNIT.

1—WALLACE & TIERNAN THREE UNIT CHLORINATING SYSTEM. Each unit 25 to 300 lb. per 24 hrs.

2—SYNTRON VIBRAFLOW LIME FEEDERS WITH MIXERS.

ONE LOT GATE VALVES, PIPING & ELBOWS. 2½", 3", 4", 6", 12", 16", 20", 24", 36".

BARREL ELEVATOR, AIR COMPRESSOR INSTALLATION, BUFFALO EXHAUSTERS, BOILER & UNIT HEATERS, SUPPLEMENTARY PUMPS, FILTRATION EQUIP., LIGHTING PANELS, MOTORS, STARTERS, ETC.

APPROX. 15,000 TONS CAST IRON WATER PIPE
Bell & Spigot Type—Used

42"	Approx.	22,000	Lin. Ft.
36"	"	10,900	" "
24"	"	5,200	" "
20"	"	2,750	" "
18"	"	13,900	" "
16"	"	2,800	" "
14"	"	4,100	" "
12"	"	9,400	" "
10"	"	13,600	" "
8"	"	22,500	" "
6"	"	14,100	" "

Bulk this pipe is in 12 ft. lengths.

THE ABOVE MATERIAL AND EQUIPMENT IS FOR SALE IN ITS ENTIRETY OR IN PART.

LOCATION WILLIAMSPORT, PA.—INSTALLED 1943—OPERATED SHORT TIME—AVAILABLE FRACTION REPLACEMENT PRICE.

***Write—Wire—Phone—*ARNOLD LANDESBERG**

LURIA BROTHERS & COMPANY, Inc.

130 Presidential Blvd. North Bala-Cynwyd, Pa. (Suburb of Phila., Pa.) *Phila. Phone Trinity 8-8100—Mohawk 4-9800*

PIPE

Surplus New & Used

FOR SALE, WANTED OR RENT

Call: HYACINTH 7-4900

PIPE, VALVES & FITTINGS
PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE

ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y.

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS	"H" BEARING PILE SLEEVES AND SHOES	K & M ASBESTOS CEMENT PIPE	CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

PIPE

2,000,000 ft. 2"	3.50# to the foot
1,000,000 ft. 3"	7.70#
1,000,000 ft. 4"	10.98#
500,000 ft. 6"	19.80#
200,000 ft. 8⅝"	28#
400,000 ft. 10¾"	35#
75,000 ft. 12¾"	40#
10,000 ft. 16"	42#

All No. 1 Grade Plain End and Cleaned
INDIANA-OHIO PIPE CO.
P. O. Box 5412 Shepard Station, Tel: CL-3-5527
COLUMBUS 19, OHIO

PIPE

STEEL PIPE

NEW — STRUCTURAL — RECONDITIONED
VALVES & ALL TYPE FITTINGS
COMPLETE FABRICATION FACILITIES

GREENPOINT PIPE SUPPLY CORP.
341 Stagg Street, Brooklyn 6, N. Y. EV. 6-7200

FORSYTHE EQUIPMENT CO., INC.

MANITOWOC SPEEDCRANES

RENTALS

Capacities to 70 Tons
Booms to 140 ft. and 90 ft. jibs
Special rates on long rentals

Exeter 2-6125 37-11 Vernon Blvd.
Long Island City 1, New York

CAT. MODEL 955 LOADER

1½ yd. Cap. Purchased new 1960

MICHAEL F. BREEN INC.
1165 Longwood Ave., Bronx 59, N. Y.
LUdlow 9-6017

RAILS-TIES

TRACK ACCESSORIES

RAILROAD Cross and Switch TIES

Promptly from adequate stocks
NEW and USED *(as available)*

GILLIS & COMPANY
134 Breckenridge Lane Louisville 7, Ky
TW 5-9484

We have the following rebuilt equipment in stock, available for immediate sale:

5) Euclid 13 yd. bottom dumps

4) Euclid 6 wheeler 14TDT rubber tired 15.5 cu. yd. scrapers

5) Rebuilt TS-24 Euclid twin engine rubber tired scrapers

1) Mod. TC-12 Euclid crawler tractor with dozer, used 5 months, rebuilt

1) Mod. TC-12 Euclid twin engine crawler tractor with pushblade, rebuilt

2) Rebuilt TS-24 Euclid twin engine, rubber tired scrapers, used five months, located in Memphis.

GIL BOERS EQUIPMENT COMPANY

7625 SO. KEDZIE AVE. CHICAGO 52, ILL.
PROSPECT 6-4000

SAVE ON YOUR
TRACK CHAINS ROLLERS SPROCKETS IDLERS, ETC.
for Caterpillar—International—Allis Chalmers
BRAND NEW—GUARANTEED
SEABOARD EQUIPMENT CO., INC.
103-109 Jamaica Ave., Jamaica 32, N. Y.
AX-7-4422

FOR SALE OR RENT

2½ YD. LINK-BELT K-595 CRANE. 140' BM.
35/40 TON INDUSTRIAL BROWNHOIST #8 DIESEL LOCO. CRANE. NEW 1951.
40/50 TON AMERICAN #508 DIESEL LOCO. CRANE. NEW 1942.
25 TON IND. BH. #5 DIESEL LOCO. CRANE.
50 TON AMERICAN STIFFLEG DERRICK AND 3 DRUM AMERICAN HOIST.
45 TON GEN. ELEC. DIESEL ELEC. LOCOS.
25 TON GEN. ELEC. DIESEL ELEC. LOCO.
1 YD. LORAIN L-50 CRANE. NEW 1951.

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

Euclid Rear Dumps

For sale or rent—two 46TD 22 ton rear dumps. Year 1953. Powered by 300 h.p. Cummins engines. Excellent condition. Immediately available.
Subject to prior sale or disposition

L. B. SMITH, INC.
Syracuse, N. Y. Phone: GR 5-2196

FOR SALE
Excellent Condition

Model MC-424 Lorain Truck Crane

on Standard 6 x 4 Moto-Crane Carrier

Located West Coast
FRAZIER-DAVIS CONSTRUCTION COMPANY
1319 MACKLIND AVENUE
St. Louis 10, Missouri
STerling 1-1950

HEAVY EXCAVATION EQUIPMENT

DRAGLINES, SHOVELS, CRANES, DRILLS, TRUCKS

15-W B.E. Elec. Drag, 215', 12 yd.
450-W B.E. Diesel Drag, 165' w/extra 10, 12, 13 & 14 yd. buckets.
9-W B.E. Elec. Drag, 165', 10 yd.
9-W B.E. Diesel Drag, 165' 12 yd.
7-W B.E. Diesel Drag, 140', 7 yd.
7400 Marion Diesel Drag, 175' 13 yd.
7400 Marion Elec. Drag, 175', 12 yd.
1855 P&H Diesel Drag, 130', 10 yd.
625 Page Diesel Drag, 160', 9 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W B.E. Diesel Drag, 125', 6 yd.
2400 Lima Elec. Drag, 130', 6 yd.
2400 Lima Diesel Drag, 130', 6 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B B.E. Elec. Drag, 115', 5 yd.
71-B B.E. Crane with 160' boom
3900, 3500 & 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1055 P&H Diesel Drag, 80', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1201 Lima Drag, 85', 3 yd.
54-B B.E. Drag, 85', 2½ yd.
5560 Marion 26 yd. Elec. Shovel
190-B B.E. 8 yd. Elec. Shovel
151-M Marion 7 yd. Elec. Shovel
1600 P&H 6 yd. Elec. Shovels
170-B B.E. 6 yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
2400 Lima 6 yd. Std. & H.L. Shovels
120-B B.E. 4 yd. Elec. Shovel
1055 P&H 3 yd. H.L. Shovel
111-M Marion Std. & H.L. Shovels
1201 Lima & 54-B B.E. Standard Shovels
#6 Northwest 1½ yd. Standard Shovel
Model T-650 REICHdrill Truck Mtd. Rotary & Down-The-Hole
Ingersoll-Rand Truck Mtd. & Crawler Mtd. Drillmasters
Keystone #50 Truck Mtd. Stardrill
Euclid Trucks, Rr. & Bottom Dump; Dozers, etc.

FRANK SWABB EQUIPMENT CO., INC.
313 Hazelton Nat'l Bank Bldg.
Hazelton, Pa. GLadstone 5-3658

High Speed in 6x6's
NEW ISSUE TRUCKS
GMC! MACK! REO "Eager Beaver!"
• *Tandem Axle* • *Front Wheel Drive*
For specifications, prices, delivery, write

MEMPHIS EQUIPMENT COMPANY
P.O. Box 2852, Dept. E., Memphis, Tenn.
NATION'S LARGEST ARMY TRUCK DEALER!

PILING

SURPLUS NEW and USED — For Sale, Wanted or Rent

NORTH–SOUTH, EAST or WEST

LOW RATES · FAST SERVICE · RENT, SELL OR BUY · NEW AND USED · SINCE 1933 · H-BEARING PILE · PILE HAMMERS · NATION-WIDE STOCKS · ANY QUANTITY · ALL SECTIONS · ALL LENGTHS

STEEL SHEET **PILING** by DIALING
Call St. Louis Collect
CHestnut 1-4474

PILE DRIVING EQUIPMENT AT YOUR FINGER TIPS

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

H & SHEET STEEL PILING

3700 PCS. BETH. SP6A, 50' 56' & 48' & 40' & 35'
1900 PCS. MP112—12', 25', 35', 40', & 60'
2800 PCS. BETH.—AP3 20', 25', 30', 35', & 60'
2500 PCS. BETH.—DP2—31', 35', 40', 50', 60'
1200 PCS. ZP38-ZP32—25', 36', 50', 60' & 65'
1400 PCS. BP8, BP10, BP12—BP14—55' to 60'
600 PCS. BETH. ZP27—25', 30', 50' & 60'
500 PCS. 15' Corrugated Piling

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
TORONTO—BALTIMORE—JACKSONVILLE
MIAMI—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVES & CRANES
12—Gen. Elec. 100, 80, 65, 45, 25 & 23 ton
25 Ton Industrial Loco Crane, 60' Boom

20 TON STIFF LEG DERRICK
1—AH&D, 40' Mast, 96' Boom, 16' BW

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephones MU 2-3075 or MU 2-1898

STEEL SHEET PILING

AVAILABLE FOR PROMPT SHIPMENT

Pcs.	Section	Length	Location
350	MP-112	60 to 64 ft.	Arkansas
275	MP-116	20 to 60 ft.	Chicago
250	MP-115	20 to 60 ft.	Chicago
80	MP-116	28 to 29 ft.	South Dakota
200	MP-115	20 to 60 ft.	Kansas City
175	MP-116	20 to 60 ft.	Kansas City
95	Mp-112	18 to 25 ft.	Kansas

CONMACO, INC.
PHONE DRexel 1-3930
804 KANSAS AVE., KANSAS CITY, KANSAS

1236' Goodman Rope Belt Conveyor, 75' truss, 36", (3) 15 H.P., (2) 30 H.P., (1) 20 H.P. Motorized Head Pulleys, Complete with Cable, Stands, and Idlers.

Air Conditioning Plant, inc. 100 H.P. Powermaster Boiler 3,347,000 BTU, Air Washer, Preheat and Reheat Coil, Intake Blower 40,000 CFM, Exhaust Blower 32,000 CFM, York Water Chiller 130 Ton Cap. with Model 3D125 Compressor, 150 H.P. A.C. Motor.

Two Louden 5 Ton Monorails with 1000' Super Track, 26 H.P. Allis Chalmers Diesel with Scrubber, Shepard Niles 23U Lifting Hoist, M16A Motoveyor Travel Unit.

MORRISON-KNUDSEN-KIEWIT-JOHNSON
P. O. BOX 254
PIERRE, SOUTH DAKOTA

Faster From Foster

STEEL-SHEET **PILING**

All sections from our regular stocks

L. B. FOSTER CO.
Pittsburgh 30 · New York 7 · Chicago 4 · Houston 2
Los Angeles 5 · Atlanta 8 · Cleveland 35

STEEL SHEET PILING

LARSSEN and ROMBAS Sections

STOCKS AVAILABLE IN:
- Linden, New Jersey
- Ft. Lauderdale, Florida
- Houston, Texas

WESTERN SERVICES CORPORATION
601 E. Linden Ave., Linden, N. J.
MArket 4-4000 HUnter 6-4000

In Florida Call: Port Everglades Steel Co. Ft. Lauderdale—JA. 4-6545
In Houston Call: G. Oliver—CA. 4-7234

CRANES FOR RENT

CRAWLERS — Capacities to 60 tons, Booms to 180 ft.
TRUCK CRANES — Capacities to 35 tons, Booms to 130 ft.

P & H, Lima and Manitowoc.
Top-Condition erection cranes

ROGER SHERMAN
CRANE SERVICE, INC.
East Hartford, Connecticut JAckson 8-4106

H-BEARING PILES

8" x 36# – 12" x 53#
10" x 42# – 14" x 73#
Immediate Shipment — Other Sizes Available
Chicago—Buffalo—Memphis—Cincinnati
Steel Sheet Piling—Pile Hammers

WHISLER STEEL PILING CO.
CHestnut 1-4474
1908 Railway Exchange Bldg., St. Louis 1, Mo.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on following pages

NEW ENGLAND

Goodkind & O'Dea

Consulting Engineers
Design and Supervision
Foundations, Structures, Highways
1214 Dixwell Ave. Hamden, Conn.
610 Bloomfield Ave., Bloomfield, N. J.
325 Spring Street, New York 7, N. Y.
108 W. Lake Street, Chicago 1, Ill.

Fay, Spofford & Thorndike, Inc.

Engineers

Industrial Plants Incinerators
Water Supply, Sewerage, Drainage
Bridges Express Highways
Port and Terminal Work Airports

Designs Investigations
Supervision of Construction

Boston 8, Massachusetts

Jackson & Moreland, Inc.
Jackson & Moreland Int'l., Inc.

Engineers and Consultants

Electrical—Mechanical—Structural

Design and Supervision of Construction
-:- for -:-
Utility, Industrial and Atomic Projects

Surveys—Appraisals—Reports

Machine Design-Technical Publications
Boston Washington New York

Chas. T. Main, Inc.

Engineers
Design and Supervision of Construction for Industrial Plants—Electrical, Steam and Hydraulic Engineering—Investigations, Reports, and Appraisals.
Boston, Mass. Charlotte, N. C.

Metcalf & Eddy

Engineers
Soils, Foundations, Waterworks, Sewage Works, Drainage, Irrigation, Flood Control, Refuse, Industrial Wastes, Airports, Highways, Military Projects, Industrial and Commercial Facilities.
Statler Building, Boston 16, Massachusetts

Moore Survey & Mapping Corp.

Engineers-Photogrammetrists-Surveyors
Geodetic Control—Construction Layout
Aerial Topographic Surveys—Tax Maps
Hydrographic Surveys—Photogrammetry
29 Grafton Circle—Shrewsbury, Mass.

MIDDLE ATLANTIC

Airways Engineering Corp.

Airports, highways, dams, fuel storage, pipe lines, aerial topographic mapping.
1212 - 18th St., N.W.,
Washington 6, D. C.
Phone: REpublic 7-8181

Ewin Engineering Corporation

Designers of Port Facilities, Foundations, Industrial Plants, Bridges, Highways, Sewage Disposal and Municipal Projects.

5104 MacArthur Blvd. N.W.
Washington, D. C.

DuPont Plaza Center, Miami 32, Fla.
150 Savannah St. Mobile, Ala.

Professional Assistance

In solving your most difficult problems is offered by consultants whose cards appear in this section.

Benjamin E. Beavin Company

Drainage, Water, Sewerage, Grading, Soils & Geologic Engineering
Ports, Airfields, Highways, Structures
104 E. 25th St., Baltimore 18, Md.

Whitman, Requardt & Associates

Engineers—Consultants
Civil—Sanitary—Structural
Mechanical—Electrical
Reports, Plans, Supervision, Appraisals
1304 St. Paul St., Baltimore 2, Md.

Louis Berger & Associates

Consulting Engineers
Studies—Design—Supervision
Highways—Structures—Airfields
177 Oakwood Avenue Orange, N. J.
2nd & Locust Streets Harrisburg, Pa.
200 S. Main St Salt Lake City, Utah
8 rue de Neuchatel Geneva, Switzerland
48 Baselerstrasse, Frankfurt, Germany

Joseph S. Ward

Consulting Soil and Foundation Engineer
Site Investigation, Boring Supervision, Laboratory Soil Testing, Foundation and Pavement Analysis and Design, Construction Supervision, Engineering Reports and Consultation
91 Roseland Avenue Caldwell, N. J.

Edwards and Kelcey

Engineers and Consultants
Highways—Structures—Airports
Traffic—Parking—Soils
Ports—Parks—Sewerage
3 William St., Newark 2, New Jersey
Boston Providence New York
Salt Lake City Minneapolis

Porter & O'Brien

O. J. PORTER & COMPANY
CONSULTING ENGINEERS
Airports — Highways — Expressways — Buildings — Bridges — Dams — Harbors — Foundations — Stabilization — Pavements
Reports, Designs & Supervision
415 Frelinghuysen Ave., Newark 5, N.J.
4201 Sunset Blvd. Los Angeles 29, Cal.
1421-47th Avenue Sacramento 22, Cal.

Boswell Engineering Co.

Consulting Engineers
Highways, Bridges, Airports, Municipal
Ridgefield Park, N. J.
West Nyack, New York
Salt Lake City, Utah
Anchorage, Alaska

John Clarkeson

Consulting Engineer
Civil Engineers—Consulting Services
Highways, Airports, Bridges
Surveys, Waterfront Facilities
Room 203, Del & Hudson RR Bldg.
Albany, N. Y.

B. K. Hough

Consulting Engineer
Soils & Foundation Engineering
Site investigations, soil testing, design analysis for earthworks, foundations and pavements, field inspection, engineering reports, consultation.
131 E. Seneca St. Ithaca, New York

M. C. Tomasetti

Consulting Engineers—Surveyors
Designs, Construction Supervision
Highways—Airfields—Structures
Soils—Foundations—Pavements—Drainage
Materials Investigations
Site Designs, Subdivisions, Surveys
Greenwich, Conn., New Rochelle, N. Y.

Ammann & Whitney

Consulting Engineers

Design and Supervision of Construction of Bridges, Highways, Expressways, Buildings, Special Structures, Airports and Airport Facilities

111 Eighth Avenue, New York 11, N.Y.

Milwaukee - Washington - Philadelphia
Paris - Athens - Tehran

Blauvelt Engineering Co.

CONSULTING ENGINEERS

Highways,
Bridges,
Reports

New York, N. Y. Philadelphia, Pa.
Woodbury, N. J. Crystal Lake, Ill.

Clinton Bogert Engineers

Consultants
Clinton L. Bogert Ivan L. Bogert
Donald M. Ditmars Robert A. Lincoln
Charles A. Manganaro William Martin
Water & Sewage Works Incinerators
Drainage Flood Control
Highways and Bridges Airfields
145 E. 32nd St., New York 16, N. Y.

Bowe, Albertson & Associates

Engineers
Water and Sewage Works—Industrial Wastes — Refuse Disposal — Valuations —Laboratory Service

75 West St. 1000 Farmington Ave.
New York 6, N.Y. W. Hartford 7, Conn.

Buck, Seifert and Jost

Consulting Engineers
Water Supply — Sewerage — Hydraulic Developments—Reports and Valuations, Chemical and Biological Laboratories.
New York City, 112 E. 19th St.

Dames & Moore

Consultants in
Applied Earth Sciences
Soil Mechanics Engineering Geology
Geophysics
Chicago • New York • San Francisco
Los Angeles • Portland • Seattle
Atlanta • Salt Lake City

John V. Dinan

Consulting Engineers
Established 1925.
Pre & Post Construction Structural (Building) Examinations, Engineering investigations, Reports, Expert Testimony, Seismograph Studies of Blasting and Pile Driving Vibration, Design, Supervision of Shoring, Underpinning, Foundations.
303 W. 42nd St., New York 36, N. Y.
COlumbus 5-6773

Ebasco Services Incorporated

ENGINEERS
CONSTRUCTORS
BUSINESS CONSULTANTS
Design and Construction
Financial and Operating Consultation
Investigations and Reports
Consulting Engineering
Appraisals
Two Rector Street, New York 6, N. Y.
140 S. Clark Street, Chicago 3, Ill.
1416 Commerce Bldg., Dallas 1, Texas
611 Equitable Bldg. Portland 4, Ore.
120 Montgomery Street,
San Francisco 4, Cal.
1625 Eye Street, N.W. Wash. 6, D. C.

Gibbs & Hill, Inc.

Consulting Engineers
Water, Sewage & Industrial Waste Treatment Works — Roads, Bridges & Railroads—Conventional & Nuclear Power Generation — Electric Transmission & Distribution Systems—Industrial & Communication Facilities.
PENN STATION NEW YORK 1, N.Y.

Frederic R. Harris, Inc.

Consulting Engineers
New York, N. Y.

Norwalk, Conn. New Orleans, La.
Toronto, Canada The Hague, Holland

REMEMBER!!

You can depend on these consultants for a fast accurate solution to your problems. Consult them when necessary.

Hardesty & Hanover

Consulting Engineers

Bridges
Fixed and Movable
Highways
Expressways, Thruways
Special Structures
Design, Supervision,
Inspection, Valuation

101 Park Avenue New York 17

Hazen and Sawyer

Engineers
Richard Hazen Alfred W. Sawyer
H. E. Hudson, Jr.
Water and Sewage Works
Industrial Waste Disposal
Drainage and Flood Control
360 Lexington Ave., New York 17, N.Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges, Structures, Foundations, Express Highways
Administrative Services
Kansas City - Cleveland - New York

King & Gavaris

CONSULTING ENGINEERS

Bridges, Highways, Tunnels
Waterfront Structures, Reports
Investigations, Foundations
Design & Supervision of Construction

41 E. 42nd St., New York 17, N. Y.

Litchfield Whiting Bowne & Assoc.

Engineers—Architects
Sewage, Water, Bridges, Airports, Flood Control, Electrification, Hospitals, Schools, City Planning, Abbatoirs, Highways, Air Conditioning, Industrial Buildings, Military.
292 Madison Avenue, N. Y. 17, N. Y.
Rome Tehran Bangkok

Marbarry Corp.

Design and Drafting Service
Construction Cost Consultant
33 Rector St. New York 6, N. Y.
WH 4-5160

Modern Engineering Corporation

Design—Consulting

62 William Street, New York, N. Y.

Moran, Proctor Mueser & Rutledge

Consulting Engineers

Foundations for Buildings, Bridges and Dams; Tunnels, Bulkheads, Marine Structures; Soil Studies and Tests; Reports, design and supervision.

415 Madison Ave., New York 17, N.Y.
Eldorado 5-4800

Parsons, Brinckerhoff, Quade & Douglas

ENGINEERS

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

165 Broadway New York 6, N. Y.

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names — Additional cards on preceding and following pages

E. Lionel Pavlo
Consulting Engineer
Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports
642 Fifth Ave. New York 19, N. Y.

Malcolm Pirnie Engineers
Malcolm Pirnie — Carl A. Arenander
Ernest W. Whitlock — Malcolm Pirnie, Jr.
Robert D. Mitchell — Alfred C. Leonard

MUNICIPAL AND INDUSTRIAL
Water Supply—Water Treatment
Sewage and Waste Treatment
Drainage—Rates—Refuse Disposal

25 West 43rd St., New York 36, N. Y.
2910 Grand Central Ave., Tampa 9, Fla.

The Pitometer Associates
Engineers
Water Waste Surveys
Trunk Main Surveys
Water Distribution Studies
Water Measurements & Special
Hydraulic Investigations
New York, 50 Church St.

Alexander Potter Associates
Consulting Engineers
Water Works, Sewerage, Industrial Waste, Hydraulic Works, Reports, Designs, Appraisals.
50 Church St., New York, N. Y.

Clyde Potts Assoc.
Weston Gavett - Stanley N. Williams
Consulting Sanitary Engineers
Sewerage and Sewage Disposal
Water Works and Water Supply
Valuations and Appraisals
203 Park Ave., Plainfield, New Jersey

Praeger-Kavanagh
Engineers
126 East 38th St., New York 16, N. Y.

Seelye Stevenson Value & Knecht
Consulting Engineers
Richard E. Dougherty, Consultant
Airports, Highways, Bridges, Dams, Water Supply, Sanitation, Railroads, Piers, Industrial Plants, Reinforced Concrete, Steel, Industrial Waste Disposal, Foundations, Soil Studies, Real Estate Development
Civil — Mechanical — Electrical
101 Park Avenue New York 17, N. Y.

Severud-Elstad-Krueger-Associates
Consulting Engineers
Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
415 Lexington Ave., New York 17, N.Y.

YOU TOO
can use the services of the consulting firms listed on these pages. They represent a great and varied collection of specialized talents.

USE THEM TO
Supply talents and specialties not existing in your organization
Obtain authoritative outside checks on your own findings and conclusions
Provide neutral and impartial opinion when there might be a difference of opinion in your company.
Take full advantage of the progress and mistakes made by others
Ease the present—and continuing—shortage of engineers
Secure social services that would not warrant full time employment
Do a hundred and one different jobs for you

Singstad & Baillie
Consulting Engineers
Ole Singstad — David G. Baille, Jr.
Tunnels, Subways, Highways
Foundations, Parking Garages
24 State St. New York 4, N. Y.

Frederick Snare Corporation
Engineers—Contractors
Harbor Works, Bridges, Power Plants, Dams, Docks and Terminals.
Difficult and Unusual Foundations A Specialty.
233 Broadway, New York City 7
Havana, Cuba — Lima, Peru
Bogota, Columbia, Caracas, Venezuela

Steinman, Boynton, Gronquist & London
Consulting Engineers
HIGHWAYS - BRIDGES - STRUCTURES
117 Liberty St., New York 6, N. Y.

Tippetts-Abbett-McCarthy-Stratton
Engineers and Architects
Ports, Harbors, Flood Control, Power Dams, Bridges, Tunnels, Highways, Railroads, Subways, Airports, Traffic, Foundations, Water Supply, Sewerage, Reports, Design, Supervision, Consultation.
375 Park Avenue, New York 22, N. Y.

Arnold H. Vollmer Associates
Consulting Engineers
Highways, Parks, Bridges, Municipal Improvements, Public Works, Reports, Surveys, Contract Plans.
25 W. 45th Street, New York 36, N. Y.
Telephone: CIrcle 7-6250

Lawrence S. Waterbury
Consulting Engineer
Bowling Green 9-9298
26 Broadway New York 4

Keis & Holroyd
Consulting Engineers
Formerly Solomon & Keis
Since 1906
Water Supply, Sewage Disposal, Garbage & Refuse Incineration, Industrial buildings.
Troy, N. Y.

Royal Contracting Corporation
Mud-Jacking, Drilling & Grouting Specialists
Box 141, Bridgeport, Pa.
(Montgomery Co.)
Ph. BRoadway-2-5891

Capitol Engineering Corporation
Engineers—Constructors—Management
Bridges — Dams
Planning — Airports
Sewage Systems — Water Works
Design and Surveys — Roads & Streets
Executive Offices, Dillsburg, Penna.

Gannett Fleming Corddry & Carpenter, Inc.
ENGINEERS
Dams, Water Works, Sewage, Industrial Wastes & Garbage Disposal, Highways, Bridges & Airports
Traffic & Parking — Appraisals, Investigations & Reports,
Harrisburg, Penna.
Branch Offices
Pittsburgh, Pa. — Philadelphia, Pa.
Daytona Beach, Fla.

Modjeski and Masters
Consulting Engineers
Bridges and other Structures
Foundations
Highways and Expressways
900 North Sixth St. Harrisburg, Pa.
Philadelphia - Miami - New Orleans

Albright & Friel Inc.
Consulting Engineers
Water, Sewage, Industrial Wastes and Incineration Problems, City Planning Highways, Bridges and Airports, Dams, Flood Control, Industrial Buildings, Investigations, Reports, Appraisals and Rates
3 Penn Center Plaza Phila. 2, Pa.

Fridy, Gauker, Truscott & Fridy, Inc.
Architects & Engineers
Water, Sewer, Waste Disposal, Roads, Airports, Power & Lighting, Petroleum Facilities, Hospitals, Schools, Public & Industrial Buildings, Reports, Plans, Supervision, Appraisals.
1321 Arch St. Philadelphia 7, Pa.

Harris-Dechant Associates
Consulting Engineers
Water Supply, Dams, Stream Improvement, Flood Control, Port & Harbor Development; Sanitary & Industrial Wastes; Hydro & Steam Power; Highway Engineering & Design.
Surveys—Reports—Economics
123 S. Broad St., Philadelphia 9, Pa.

The Kuljian Corporation
Engineers • Constructors
WE DESIGN AND CONSTRUCT
Power Plants • Public Works • Processing Plants • Oil Refineries • Chemical Plants • Textile Plants • Airport Facilities • Military Installations
1200 N. Broad St., Philadelphia 21, Pa.

Yule, Sticklen, Jordan & McNee
ENGINEERS
Bridges, Highways, Airports
Design, Investigations, Reports
Supervision of Construction
Civil, Structural Mechanical & Electrical
Cedar Cliff Drive
Camp Hill, Pa.
1225 Vine Street
Philadelphia 7, Pa.
5564 North High Street
Columbus, Ohio

Justin & Courtney
Consulting Engineers
Joel B. Justin - Neville C. Courtney
Dams and Power Problems, Hydroelectric, River Basin Developments, Water Supply, Foundations.
121 South Broad Street
Philadelphia 7, Pa.

Hunting, Larsen & Dunnells,
Engineers
Industrial Plants — Warehouses, Office and Commercial Buildings, Steel and Reinforced Concrete. Design and Supervision, Reports.
1150 Century Bldg., Pittsburgh, Pa.

Morris Knowles Inc.
Engineers
Water Supply and Purification Sewerage and Sewage Disposal, Valuations, Laboratory, City Planning.
Pittsburgh, Pa.

Peter F. Loftus Corporation
Design and Consulting Engineers
Electrical • Mechanical • Structural
Civil • Nuclear • Architectural
First National Building
Pittsburgh 22, Pennsylvania

Pennsylvania Drilling Company
Subsurface Explorations, Grouting, Industrial Water Supply, Mineral Prospecting.
Large Diameter Drilled Shafts, Reports
1205 Chartiers Ave. Pittsburgh 20, Pa.

Michael Baker, Jr., Inc.
Consulting Engineers, Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps; Surveys; Reports & Investigations; Irrigation, Home Off.—Rochester, Pa. Br. Off.: Jackson Miss.; Harrisburg, Pa.; College Park, Md.

Sprague & Henwood, Inc.
Drilling Services
Foundation Investigations, Soil Testing & Test Borings, Grout Hole Drilling & Pressure Grouting, Diamond Core Drilling
Main Office
221 W. Olive Street, Scranton, Pa.
Branches:
1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
300 Mt. Lebanon Blvd., Suite 100 Pittsburgh 34, Pa.
Box 1446—Grand Junction, Colorado
Nashville, Tennessee
Buchans, Newfoundland

Frank D. McEnteer's Associates, Inc.
Consulting Engineers
Bridges, Highways, Industrial Plants
Design, Investigations, Surveys
Terminal Building, Clarksburg, W. Va.

SOUTH

Harry Hendon & Associates, Inc.
Engineers
Civil Engineers—Public Utilities
Investigations—Designs
Supervision of Construction
P. O. Box 7404A — 925 Sligh Blvd.
Birmingham 13, Ala. — Orlando, Florida

THIS SECTION
is available to consulting engineers to contact prospective clients every week or every other week.

CONSULT THESE SPECIALISTS . . .

when you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages. Rates for the Professional Services section are:

	PER WEEK		
	13 times	26 times	52 times
3¼"—$14.35	$13.35	$12.45
1½"—$23.85	$22.30	$21.00

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names

Additional cards on preceding and following pages

Palmer and Baker Engineers, Inc.

Consulting Engineers - Architects

Surveys-Reports-Design-Supervision Consultation

Transportation and Traffic Problems
Tunnels-Bridges-Highways-Airports
Industrial Buildings
Waterfront and Harbor Structures
Graving and Floating Dry Docks
Complete Soils, Materials and Chemical Laboratories

Mobile, Ala. New Orleans, La.
Washington, D. C.

Rader and Associates

Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry.
First Natl. Bank Bldg., Miami 32, Fla.

J. Stephen Watkins

Consulting Engineers

Highways—Bridges—Sewerage
Water Supply—Industrial Plants

446 E. High St., Lexington, Kentucky
2617 Dixie Highway, Louisville, Ky.
107 Hale St., Charleston, W. Va.

Eustis Engineering Company

FOUNDATION AND SOIL
MECHANICS INVESTIGATIONS

Soil Borings *Laboratory Test*
Foundation Analyses *Reports*

3635 Airline Highway
Metairie, Louisiana

Schmidt Engineering Co. Inc.

Consulting Engineer

Investigations, Reports, Designs, Supervision Heavy Construction—Dams and Hydroelectric Projects—Foundation Explorations and Treatment—Water and Sewerage Works—Bridges & Highways
Emerson Building Chattanooga, Tenn.

ETCO Engineers and Associates

Foundation Consultants

Test Borings Laboratory Tests
Recommendations, Design and Supervision

2116 Canada Dry St., Houston 23, Tex.
727 Main St. Baton Rouge, La.
427 Carondelet St., New Orleans 12, La.

Mott Core Drilling Company

Core Borings for Buildings, Bridges
Foundation Soil Tests, Highways
Pressure Grouting, Dams, Mine Shafts
Mineral Prospecting

826-846 Eighth Ave. Huntington, W. Va.

MIDDLE WEST

Alvord, Burdick & Howson

CONSULTING ENGINEERS

Water Works Sewerage
Water Purification Sewage Treatment
Flood Relief Power Generation
Drainage Appraisals

20 North Wacker Drive, Chicago

CONSULTANTS!

This section provides you with a dignified, ethical means of presenting your specialized services to key men in engineering.

Consoer, Townsend & Associates

Consulting Engineers

Sewage treatment, sewers, storm drainage, flood control—Water supply and treatment—Highway and bridges—Airports—Urban renewal—Electric and gas transmission lines—Rate studies, surveys and valuations—Industrial and institutional buildings.

360 East Grand Ave. Chicago 11, Ill.

De Leuw, Cather & Company

CONSULTING ENGINEERS

Public Transit Subways
Traffic & Parking Railroad Facilities
Expressways Industrial Plants
Grade Separations Municipal Works
Urban Renewal Port Development

150 North Wacker Drive, Chicago 6
San Francisco Toronto Boston

Harza Engineering Co.

Consulting Engineers

Calvin V. Davis E. Montford Fuelk
Richard D. Harza

Hydroelectric Plants & Dams
Transmission Lines
Flood Control, Irrigation
River Basin Development

400 West Madison Street Chicago 6

Greeley and Hansen

Engineers

Water Supply, Water Purification
Sewerage, Sewage Treatment
Flood Control, Drainage, Refuse Disposal

14 E. Jackson Boulevard
Chicago 4, Illinois

Hazelet & Erdal

CONSULTING ENGINEERS

Fixed & Movable Bridges, Expressways, Industrial Plants, Airports, Dams.
Monadnock Block, Chicago 4, Ill.
Dixie Terminal Bldg., Cincinnati 2, O.
Commerce Bldg., Louisville 2, Ky.
Oding Bldg., Lansing 33, Mich.

Pioneer Service & Engineering Co.

Consulting and Design Engineers
Operations - - - Purchasing
Steam - - Hydraulic - Gas
Public Utilities - - Industrials

231 So. La Salle St. Chicago 4

Sargent & Lundy

ENGINEERS

Consultants to the Power Industry
Studies • Design • Supervision
140 South Dearborn Street,
Chicago 3, Ill.

Soil Testing Services, Inc.

Soil Investigations, Laboratory Testing Engineering Reports & Recommendations

1827 N. Harlem Ave., Chicago 35, Ill.

Suhr, Peterson, Peterson & Suhr

Consulting Engineers

REPORTS—PLANS—SUPERVISION
Sewerage, Water Supply, Flood Control & Drainage, Airports, Roads, Surveys
Fixed & Movable Bridges

130 N. Wells St., Chicago 6, Ill.
P. O. Box 1858, Anchorage, Alaska

Chas. W. Cole & Son

Engineers and Architects

3600 E. Jefferson Blvd.
South Bend, Indiana

2112 W. Jefferson St.
Joliet, Illinois

The Hinchman Corporation

Consulting Engineers

"WORLD-WIDE ACTIVITIES"
Survey • Design • Supervision
Specializing In
Corrosion Control•F.C.C. Certification Tests
Electromagnetic Interference Studies
Francis Palms Bldg., Detroit, Michigan

The H. C. Nutting Company

Testing Engineers—Inspection Service
Foundation Investigation—Test Borings
Soil Mechanics—Sewage Flows
Construction Control—Concrete
Water Waste Survey

4120 Airport Road Cincinnati 26, O.

The Austin Company

Design and Construction
Manufacturing and Process Plants
Newspaper and Broadcasting Bldgs.
Power Plants—Industrial & Institutional
Industrial Office Buildings and Laboratories
Merchandising Bldgs. & Facilities
Plant Location Surveys

New York CLEVELAND Los Angeles
Chicago Houston Oakland
Detroit Seattle

Havens and Emerson

A. A. Burger, H. H. Moseley, J. W. Avery, F. S. Palocsay, E. S. Ordway, A. M. Mock, G. H. Abplanalp, S. H. Sutton
Frank C. Toiles, Consultant
Water, Sewerage, Garbage, Industrial Wastes, Valuation—Laboratories

Leader Bldg. Woolworth Bldg.
Cleveland 14 New York 7

F. H. Maag

Consultant—Construction Accounting

Estimating, Cost Control,
Accounting Methods
Insurance Requirements
13909 Edgewater Drive
Phone—AC-6-3738
Lakewood, 7, Ohio

The Osborn Engineering Co.

DESIGNING-CONSULTING

Industrial Plants Office Buildings
Stadiums Grand Stands Field Houses
Bridges Garages Laboratories

7016 Euclid Ave. Cleveland 3, Ohio

Rackoff Associates

Engineers

Highways, Expressways, Bridges, Sewerage and Water Systems, Fiscal and Master Planning, Investigations, Urban Renewal, Supervision

1033 W. Third Ave., Columbus, Ohio

Slocum & Roberts

Construction Consultants

Heavy Construction Project Investigations, Planning, Estimating & Bidding, Plant Layout & Management

504 E. Pine St. 11820 Edgewater Drive
Alhambra, Calif. Lakewood 7, Ohio

Jones, Henry & Williams

Consulting Sanitary Engineers

Water works Sewerage & Treatment
Waste Disposal

2000 W. Central Ave., Toledo 6, Ohio

Toledo Testing Laboratory

Engineers—Chemists

Concrete—Soils—Asphalt
Inspection Research
Tests Development
Foundation Investigation
Borings—Diamond Drilling
Load Tests
Soils Mechanics Laboratory

1810 North 12th St. Toledo 2, Ohio

WEST OF MISSISSIPPI

Heron Engineering Co.

Consulting Engineers

For all types of Aerial Tramways, Cableways, and Suspended Structures

2000 South Acoma St.
Denver 23, Colorado

Stanley Engineering Company

Consulting Engineers

Hershey Building 208 S. LaSalle St.
Muscatine Ia. Chicago 4, Ill.

Black & Veatch

Consulting Engineers

Water - Electricity - Sewage - Gas - Industry - Reports, Design, Supervision of Construction, Investigations, Valuation and Rates.

1500 Meadow Lake Parkway
Kansas City 14, Missouri

Bucher & Willis

Consulting Engineers

Highways, Bridges, Structures, Planning Reports, Supervision and Investigations

Box 583,
1412 W. 47st St. 625 E. Crawford
Kansas City, Missouri Salina, Kansas

Burns & McDonnell

Engineers—Architects—Consultants

4800 E. 63rd St. Trafficway
Kansas City 41, Missouri

Russell and Axon

Consulting Engineers

Civil — Sanitary — Structural
Industrial — Electrical
Rate Investigations

408 Olive St. St. Louis 2, Mo.
Municipal Airport, Daytona Beach, Fla.

Sverdrup & Parcel Engineering Co.

Engineers—Architects

Bridges, Structures and Reports, Industrial and Power Plant Engineering

915 Olive St., St. Louis 1, Mo.
417 Montgomery St., San Francisco, Calif.

CHECK

this section whenever you need professional advice.

HOW ABOUT YOU?

These consultants are taking full advantage of the opportunity now available to reach over 81,000 prospects and customers every week. You, too, can now receive the benefits of the PROFESSIONAL SERVICES SECTION 52 times in a year.

For further information write:

ENGINEERING NEWS-RECORD
Class. Adv. P.O. Box 12, New York 36

PROFESSIONAL SERVICES

Cards arranged by areas, states, cities, names — Additional cards on preceding pages

Benham Engineering Company
Established in 1909
Design and Consulting Engineers
215 N E 23rd Street
Oklahoma City 5, Oklahoma

Spencer J. Buchanan and Associates, Inc.
Consulting Engineers
Soil Mechanics and Foundation Engineering. Civil Engineering Services. Reports, Design and Field Supervision.
310 Varisco Building, Bryan, Texas
TAylor 2-3767

Soil Mechanics Incorporated
Foundation Exploration and Testing Services
Site Investigations, Soil Borings, Field and Lab Testing, Load Tests, Reports
310 Varisco Building, Bryan, Texas
TAylor 2-3767

Lockwood, Andrews & Newnam
Consulting Engineers
Navigation Facilities — Public Works Airports — Earthworks — Roads, Structural, Mechanical — Electrical Reports — Design — Supervision Surveys — Valuations
Corpus Christi—Houston—Victoria, Texas.

FAR WEST

International Engineering Company, Inc.
ENGINEERS
Investigations - Reports - Design
Procurement - Field Engineering
Domestic and Foreign
74 New Montgomery St.
San Francisco 5, California

Jacobs Associates
Consulting Construction Engineers
TUNNELS—DAMS
EARTHMOVING—FOUNDATIONS
Methods, Cost Estimates, Plant Design, Management, Surveys, Engineering Geology, Materials Handling
503 Market St., San Francisco 5, Calif.

Nevada Testing Laboratories, Ltd.
Engineering—Civil—Soils & Foundation Consultants—Field Testing—Soil Borings — Rock Drilling — Materials Field Control—Load Tests—Laboratory Testing—Soils—Concrete—Asphalt
300 W. Boston Ave. Las Vegas, Nev.

FOREIGN

Puerto Rico Testing Services, Inc.
Soils and Foundation Consultants
Borings-Laboratory Tests-Supervision
Concrete—Materials—Designs—Reports
P.O. Box 588
Roosevelt (San Juan) Puerto Rico

INSPECTION & TEST

Robert W. Hunt Company
Inspection and Testing of Engineering Materials & Equipment
General Offices and Laboratories
810 South Clinton Street, Chicago 7, All Principal Cities

CONSULTANTS!

This section provides you with a dignified, ethical means of presenting your specialized services to key men in engineering.

Johnson Soils Engineering Laboratory
Foundation Design - Highway & Airport Pavements - Construction Control - Load Tests - Shear & Consolidation Tests - MOBILE LABORATORIES
193 West Shore Ave., Bogota, N. J.
Bogota-Hubbard 7-4408

Pittsburgh Testing Laboratory
A national service with complete laboratory and inspection facilities.
Laboratories in principal cities.
Main Office: 1338 Locust St., Pittsburgh, Pa.

Law Engineering Testing Company
Soils Engineers & Consultants
Soil Testing — Soil Boring — Rock Drilling—Load Testing—Field Control —Engineering Studies—Chemical Analysis—Physical Testing
Box 1558 Atlanta 1 Ga.
Serving the entire South

AERIAL SURVEYS

Aerial Map Service Co.
Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction. City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements, Triangulation, Electronic Computation.
1016 Madison Ave., Pittsburgh 12, Pa.

American Air Surveys, Inc.
AERIAL TOPOGRAPHIC MAPS & AERIAL PHOTOS FOR
• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories
907 Penn Ave. Pittsburgh 22, Pa.
Branches-Manhasset, N.Y.-Atlanta, Ga.

GEOLOGISTS

Geologic Associates
ENGINEERING GEOLOGISTS
Studies and Reports
Foundation Investigations
Specialized Drilling and Sampling
Brentwood, Tennessee
Phone (Nashville) VErnon 2-1748

YOU TOO

can use the services of the consulting firms listed on this page. They represent a great and varied collection of specialized talents.

USE THEM TO

Supply talents and specialties not existing in your organization
Obtain authoritative outside checks on your own findings and conclusions
Provide neutral and impartial opinion when there might be a difference of opinion in your company
Take full advantage of the progress and mistakes made by others
Ease the present—and continuing—shortage of engineers
Secure special services that would not warrant full time employment
Do a hundred and one different jobs for you

QUICK solutions to your technical problems are available through these consultants. Think first of the Professional Services Section of your publication when considering calling in an expert.

SEARCHLIGHT
Equipment Locating Service

This service is aimed at helping you, the reader of "SEARCHLIGHT", to locate Surplus new and used Engineering and Construction equipment not currently advertised. (This service is for USER-BUYERS only). No charge or obligation.

How to use: Check the dealer ads on pages 92-93 to see if what you want is not currently advertised. If not, send us the specifications of the equipment wanted on the coupon below, or on your own company letterhead to:

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, New York

Your requirements will be brought promptly to the attention of the equipment dealers advertising in this section. You will receive replies directly from them.

Searchlight Equipment Locating Service
c/o ENGINEERING NEWS-RECORD
P.O. Box 12, New York 36, N. Y.

Please help us locate the following equipment:.....

.....

Name ..... Title .....

Company ..... Street.....

City ..... Zone..... State.....

7/21/60

CLASSIFIED ADVERTISERS' INDEX

Albert Pipe Supply Company..... 93
Ambursen Dam Company, Inc..... 92
Associated Pipe & Fitting Company... 93

Boers Equipment Company, Gil..... 93
Breen Inc. Michael F..... 93
Buff 92

Ciampi Brothers 92
County of San Bernardino..... 91
Conmaco, Inc. 94

Forsythe Equipment Company..... 93
Foster Company, L. B..... 94
Frazier-Davis Construction Company.. 94

Gillis & Company..... 93
Greenpoint Pipe Supply Corporation... 93

Indiana-Ohio Pipe Company..... 93
Instrument Sales Company..... 92

Luria Brothers Company, Inc..... 93

McKee & Company, Arthur G..... 91
McKee General Contractor, Inc. R. E.. 91
Memphis Equipment Company..... 94
Mississippi Valley Equipment Company 94
Morrison-Knudsen-Kiewit-Johnson..... 94

National Schools of Construction..... 92

Seaboard Equipment Company, Inc.... 93
Seaboard Steel Corporation..... 93
Sherman Crane Steel Inc. Roger..... 94
Smith Inc. L. B..... 94
Stanhope Inc. R. C..... 94
Sverdrup & Parcel Engineering Company 91
Swabb Equipment Company, Inc. Frank 94

Warren-Knight Company 92
Western Services Corporation..... 94
Whisler Equipment Company..... 94
Whisler Steel Piling Company..... 94

ADVERTISERS IN THIS ISSUE

Allis-Chalmers 12-13
Aluminum Company of America 50-52
American Pipe and Construction Co. .... 3rd Cov.

Bethlehem Steel Co. 42

Chicago Bridge & Iron Company ..... 2nd Cov.
Chrysler Marine & Engine Div. 28-29
Cleveland Trencher Co. 63
Committee on Steel Pipe Research 80
Concrete Plant Mfgrs. Bureau 62
Concrete Reinforcing Steel Institute 70

The Deming Co. 58
The Dow Chemical Company 54

Elgood Concrete Forms, Corp. 60
Esso Standard Oil 84

The Goodyear Tire & Rubber Co., Truck Tires Dept. 7
Griffin Wellpoint Corp. 58
C. L. Guild Construction Co., Inc. 60

Harrison Paint & Varnish Co., Midland Industrial Div. 43
A. C. Horn Div., Sun Chemical Corp. 67

International Harvester Co., Construction Equipment Div. 8-9, 69, 78-79

The Jaeger Machine Co. 44

Keuffel & Esser Co. 73
Walter Kidde & Co., Inc. 6
The Kinnear Mfg. Co. 44

Laclede Steel Company 57
Liberty Mutual Insurance Company 16

Marlow Pumps 61
Mayo Tunnel & Mine Equipment 60
McGraw-Hill Book Co., Inc. 83
Moretrench Corporation 14
Murphy Diesel Company 1

National Gypsum Company 66
Northwest Engineering Co. 3

Ozalid Div., General Aniline & Film Corp. . 59

Pittsburgh Plate Glass Co. 25
Posey Iron Works, Inc. 44
The Preload Company, Inc. 53

Raymond International, Inc. 10
Reda Pump Company 11
Republic Steel Corporation 64-65
John A. Roebling's Sons Division, The Colorado Fuel and Iron Corporation 76
Joseph T. Ryerson & Sons, Inc. 18

John W. Stang Corp. 45
Superior Concrete Accessories, Inc. 47

Swenson Spreader & Manufacturing Co. 55
Symons Clamp & Mfg. Co. 2

Thermoid Division, H. K. Porter Company, Inc. 32
E. A. Thompson Co., Inc. 56
Timber Structures, Inc. 46
The Timken Roller Bearing Co. ..... 4th Cov.
Tousey Varnish Company 74-75
Truck Mixer Mfgrs. Bureau 49

Union Wire Rope Corp. 38-39
U. S. Steel Corp. 4-5
United Steel Fabricators, Inc. 36

Winpower Mfg. Co. 58
R. D. Wood Company 37

Yeomans Brothers Co. 41

Professional Services 95-98

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 90-92
Notices
Proposals 88-90
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) 92-93
Advertisers' Index 98

ENGINEERING NEWS-RECORD

330 West 42 St., New York 36—LOngacre 4-3000

ABP Member ABC

Number of copies of this issue printed 86,273

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Assistant Business Manager

ADVERTISING REPRESENTATIVES

Atlanta, 3—1375 Peachtree Street, N.E.
Robert H. Powell, Jr.

Chicago, 11—520 No. Michigan Ave.
L. H. Hunt, W. G. Payne, Earl S. Moore, Jr.

Cleveland, 13—1164 Illuminating Bldg., 55 Public Square
H. A. Bergstrom, F. P. DiToro

Dallas, 1—Vaughn Bldg., 1712 Commerce St.,
John Grant, Robert T. Wood

Denver, 2—Tower Building, 1700 Broadway
J. W. Patten

Detroit, 26—Penobscot Bldg.,
R. I. Mace

Los Angeles, 17—1125 W. Sixth St.,
Knox Bourne, S. S. Tiebout

New York, 36—500 5th Ave.
C. D. Neulen, H. T. Olsen
Robert L. Barker

Philadelphia, 3—Six Penn Center Plaza
D. G. Jensen
Patrick Keleher

Pittsburgh, 22—4 Gateway Center
Malcolm Russell

St. Louis, 8—Continental Bldg.,
E. B. Mingle, Jr.

San Francisco, 4—68 Post St.
John J. Hernan

OTHER SALES OFFICES:

Boston 16—350 Park Square Bldg., United Kingdom, Edwin E. Murphy, 95 Farringdon St., London E.C. 4.—Germany, Austria, Stan Kimes, 85 Westendstrasse, Frankfort/Main, Germany—Switzerland, Italy, France and Belgium, Michael R. Zeynel, 2 Place du Port, Geneva, Switzerland

Do YOU know HOW MUCH the

CONSTRUCTION DAILY

can help you . . .

- ***go after the most profitable jobs***
- ***stabilize your new business procurement***
- ***plan ahead***
- ***move with the market***
- ***keep ahead of competition***

For less than $1 a day you can get this 2-in-1 Service

1. CONSTRUCTION DAILY— ***NEWSLETTER***

—24-hour advance news on big bid dates, top jobs, planning ahead, trends, costs and prices, appropriations, new investment money trends, labor news, Washington events and news affecting construction

—also new PROPOSED projects just entering their planning stage—at the rate of $80 million a day

2. CONSTRUCTION DAILY— ***REPORTS***

—Bids Asked dates, Low Bidders, Contracts Awarded averaging $75 million a day

You get names and addresses of Owners, Contractors, Engineers, Architects along with job descriptions, job locations, job follow up for new developments, in all 50 states, Canada and larger foreign projects.

See for yourself—Send for your sample copies of CONSTRUCTION DAILY, test it out, see how it is helping others and can help your business. **Write:**

Manager, CONSTRUCTION DAILY
P.O. Box 89, Times Square Station
New York 36, N. Y.

Engineers and Politics

FOR THE FIRST TIME in this magazine's 86-year history its cover carries the pictures of the two nominees for the office of the President of the United States. Obviously, the purpose is not to show the reader what these well-known men look like. Nor is it to advance the candidacy of either, or because they have engineering backgrounds.

Most directly, the pictures relate to the story on page 19, which offers a comparison of those planks of the nominees' rival political platforms that carry implications for the future of the practice of engineering or the business of construction. But equally important, the pictures have a symbolic meaning. They emphasize the increasing role of the federal government in construction matters, and the growing responsibility of the engineer and the construction man to help shape this role for the best interests of the nation and its people.

Time was, and not too long ago, when the construction industry's only contact with the federal government was when a post office was built, a navigable waterway dredged or an irrigation project undertaken. About the only federal regulation that impinged on other public works, or any private construction, related to bridge clearances over navigable streams.

Today, there is almost no class of construction, however local in character, that has not been "federalized" in one respect or another. Highways, housing, schools, power plants, water supply and stream sanitation benefit from federal funds. The great military installations and most of the atomic energy facilities are entirely federal government enterprises. U. S.-generated construction in underdeveloped countries abroad stems directly from federal government actions.

Today, too, there is no construction whatever, public or private, that is free from some sort of federal regulation. To a major degree such federal regulation affects the cost of money borrowed for construction, labor's wages and, through the federal income tax, the level of salaries and the cost of materials and equipment.

Extensive contacts with the federal government are the order of the day for every engineer and construction man. What government does and plans to do in fields that affect construction is therefore of vital concern. It at least should be understood and, better still, should be guided by advice and leadership.

Construction people have outstanding talents for such political leadership—objective mental attitudes and abilities to examine facts dispassionately. These are better tools with which to fashion policy than emotion or prejudice, but to be effective they must be wielded by men of unquestioned honesty working for the best interests of the nation as a whole. And since this is an image that is far from prevalent, the wise words spoken before the Republican National Convention last week by a great engineer-statesman have powerful meaning.

"Our nation needs a rebirth of a great spiritual force," said former President Herbert Hoover, to the end that integrity, honesty and pride in America and its ideals will remove the cynicism that has produced a "frightening moral slump" in many of our walks of life. He spoke of a too general tendency to use "dodges, tricks and untruths," and, with the same thought in mind a month ago, Mr. Hoover had spoken directly to the engineering profession. It was at the corner-stone ceremonies for the United Engineering Center in New York, and his words were that "the very nature of training for our profession demands intellectual integrity and minds to whom truth has become an instinct."

As engineers and construction people continue to contend with the increasing role of government in their activities and, more and more, assume their responsibility to help shape this role for the best interests of the nation, these words of Mr. Hoover's should be remembered. They can be a guide to the kind of political leadership that the construction industry can embrace with pride and exert with confidence.

Aid to Road Programming

COMMENDATION IS DUE the Department of Commerce and the Bureau of Public Roads for apportioning to the states the bulk of funds for federal-aid highway construction for fiscal 1962 (see p. 26). The total of about $2.9 billion exceeds the $2.7 billion the states can obligate for Interstate and ABC highways and bridges in fiscal 1961.

Apportionment at this time provides a solid basis for long-range planning, for it permits the states to prepare their programs and make any necessary fiscal arrangements for matching funds. Also, the announcement removes uncertainties such as existed this year when apportionments for fiscal 1961 were not made until early June (ENR June 9, p. 17).

The Bureau of Public Roads has not yet announced the rate at which 1962 funds may actually be obligated under the "reimbursement planning" concept. Presumably, this will come much later, and take whatever form is necessary to balance income and outgo from the Highway Trust Fund. This year states with plans and matching funds available are being permitted to obligate about one-half the year's federal-aid funds during the current (first) quarter.

Exact reason for the prompt apportionment of future funds, in contrast to last year's tardy action, is not known. It is almost certainly related to the fact that a full scale review of the accelerated program is due in the Congressional session that begins in January.

But whatever the reason, clearing the decks for action this far in advance is desirable. And the states should take full advantage of it in moving forward their own programs.